

**New or Little-known Crane-Flies from Portuguese East Africa
(Diptera : Tipulidæ).**

By

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With 40 Text-figures.

OUR knowledge of the Tipulidæ of Portuguese East Africa (Moçambique) has been virtually lacking until the past three years when satisfactory collections made by Mr. and Mrs. Brian Stuckenberg, of the Natal Museum, have made known many species. Since there has existed this striking gap in our knowledge of distribution of these flies it is felt that a detailed list of the species would be of unusual help in making known the South African fauna. Many of the species were taken by Mrs. Stuckenberg at and near Luabo before her marriage when she was Miss Pamela J. Usher, and such earlier records are given under her maiden name.

The chief localities where the Stuckenbergs have collected in Portuguese East Africa are as follows :

Luabo, at the Sena Sugar Estates, Zambezia, on the north bank of the Zambezi River. This was for long the home of the Usher family and the unusual range of species taken throughout the various seasons provides many records of exceptional interest.

Gorongosa Mountain, in Manica and Sofala, almost due east of Umtali in Southern Rhodesia. Collections were made by Stuckenberg in September 1957 on the western slopes of the mountain, chiefly at an altitude of about 840 m., in gallery forests, and again at about 1,200 m. in montane rain forest, during the tenure of a grant awarded by the South African Council for Scientific and Industrial Research.

Vila Paiva de Andrada, in Manica and Sofala, immediately south of Gorongosa, altitude 430 m., September 1957, by Stuckenberg.

Machapanda and *Spungabera*, in Manica and Sofala, just across the border from Umtali in Southern Rhodesia. Small collections made in January 1955 by Stuckenberg, the records having been reported in an earlier paper (Ann. Natal Mus., vol. 14, (1), 131-154, 1957), repeated here in order to complete the data.

Tumbine Mountain at Milange (once called Machinjiri Mountain), in Zambezia, east of Blantyre, Nyasaland, and close to the better known Mount Mlanje in Nyasaland. Collections made in July 1957, chiefly at altitudes of about 5,400 ft., by Stuckenberg and Miss Usher. Various species of unusual interest were taken, indicating a rich crane-fly fauna.

Additional to the species secured in Portuguese East Africa, I am including

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one, *Limonia (Pseudoglochina) pamela* n. sp., from nearby Blantyre, Nyasaland. The subgenus is new to the Ethiopian Region, adding a particularly interesting Oriental element to the record.

The types and representatives of previously described species have been returned to the Natal Museum. I wish to express my deepest thanks and appreciation to Brian and Pamela Stuckenberg for their continued interest in saving these fragile flies, so often neglected in non-specialized collecting of the Diptera.

TIPULIDÆ.

TIPULINÆ.

1. *Megistocera filipes filipes* (Fabricius).

Tipula filipes Fabricius, 1805; Syst. Antl., 25.

Mægistocera filipes Wiedemann, 1821; Dipt. exot., 1: 41.

Megistocera bicauda Speiser, 1909; Kilimanjaro-Meru Zool. Exped., 1905-06, 10 Dipt., 4 Orthorapha Nematocera, 53-54 (♀).

Megistocera hirsuta Alexander, 1917; Ann. S. Afr. Mus., 17: 159-160 (♂).

Megistocera filipes filipes Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7, Tipulidæ: 134.

The typical subspecies is widely distributed in Tropical Africa, including Madagascar.

Portuguese East Africa: Luabo, May-September 1957 (Usher).

2. *Ctenacroscelis brunneus basiproductus* n. subsp. Text-figs. 2, 3.

Generally similar to typical *Ctenacroscelis brunneus brunneus* (Bigot), of Madagascar and Réunion, distinguished by slight but apparently important differences in the male hypopygium (fig. 3). Ninth tergite, *t*, with the setæ of the lobes more generally distributed, extending virtually to the apices. Outer dististyle narrower; inner style with the basal lobe on mesal face strongly developed. The typical form is shown for comparison (fig. 2); tergal lobes without major setæ near apical borders. Outer dististyle, *d*, broad; inner style with the basal lobe small or only moderately developed.

Holotype, ♂, Gorongoza Mountain, Portuguese East Africa, 840 m., September 1957 (Stuckenberg). *Paratypes*, ♂, Zimbabwe, near Fort Victoria, Southern Rhodesia, January 29, 1955 (Stuckenberg); ♀, Salisbury, Southern Rhodesia, May 12, 1914; ♀, Que Que, Bultitude, Southern Rhodesia.

3. *Longurio (Longurio) aspropodus* Alexander.

Longurio (Longurio) aspropoda Alexander, 1957; Ann. Natal Mus., 14: 132-134, fig. 1 (♂ hypopygium), fig. 8 (venation).

Portuguese East Africa: Spungabera, January 21, 1955 (Stuckenberg); part of type material.

4. *Nephrotoma fumidapicalis* Alexander.

Nephrotoma fumidapicalis Alexander, 1921; Ann. Mag. nat. Hist., ser. 9, 7; 103-105.

Described from Nyasaland and Southern Rhodesia.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

5. *Nephrotoma gorongozæ* n. sp. Text-fig. 5.

Size large (wing of male 13 mm. or more); general coloration of thorax yellow, the præscutal disk, scutal lobes and scutellum uniformly polished black; antennal flagellum black; legs black, femoral bases narrowly yellowed, claws of male toothed; wings brownish yellow, the outer fifth darker brown; male hypopygium with the tergal lobes rounded, with spinules on mesal face; inner dististyle massive, subquadrate in outline, the outer basal lobe produced into a short straight spine, its base surrounded by several strong setæ; eighth sternite virtually truncate, unarmed; a median setuliferous rod from between the eighth and ninth sternites.

Male.—Length about 12.5-13 mm.; wing 13-14 mm.; antenna about 6-6.5 mm.

Frontal prolongation of head light yellow, more infuscated dorsally, nasus blackened; palpi with basal segments brownish yellow, the elongate terminal one pale basally, darkened at tip. Antennæ relatively long, as shown by the measurements; scape and pedicel fulvous, flagellum black; flagellar segments moderately incised, a little exceeding the longest verticils. Head light yellow on anterior vertex, summit of vertical tubercle, and the posterior orbits, the disk of the vertex more orange with a darkened orbital cloud near the base of the tubercle; occipital brand large to very large, subnitidous, black, bordered by more opaque black, sending a spur anteriorly almost to the summit of the tubercle; vestiture of the vertex black.

Cervical sclerites and pronotum light yellow, the sides of the scutum weakly darkened; pretergites clear light yellow in front. Mesonotal præscutum with a solid polished black shield, restricting the light yellow ground to the humeri and small areas before the suture; præscutal vestiture very short and sparse; scutum with lobes solidly blackened, the narrow mid-area and outer posterior parts of the lobes brownish yellow; scutellum black, parascutella brownish yellow; mediotergite clear light yellow with about the posterior third darkened; surface except near anterior end with numerous long pale procumbent setæ; pleurotergite light yellow, the dorsal part weakly infuscated. Pleura light yellow, with vague more reddened areas on the anepisternum and ventral meron. Halteres with stem weakly darkened, knobs obscure yellow. Legs with the coxæ and trochanters yellow; remainder of legs black, the femoral bases narrowly yellow, slightly broader on fore leg where about one-sixth is included, much narrower on the remaining legs; claws of male toothed. Wings strongly suffused with brownish yellow, the outer fifth darker brown,

prearcular and costal fields more yellowed ; stigma oval, dark brown ; a very narrow darkened seam on anterior cord ; veins brown, paler in the brightened fields. Abundant conspicuous macrotrichia in outer half of cell R_5 , with fewer in outer ends of cells M_1 and 2nd M_2 . Venation : Cell M_1 broadly sessile.

Basal abdominal tergites obscure brownish orange, segments seven to nine, inclusive, black ; basal tergites with a nearly continuous black central stripe, narrowly interrupted at the posterior borders ; lateral margins of tergites weakly darkened, especially at anterior ends ; basal sternites yellowed. Male hypopygium (fig. 5) with the tergite, t , transverse, blackened, posterior margin with two low rounded lobes that are separated by a narrow reddened emargination ; mesal face of each lobe with short blackened spinules. Lobes of ninth sternite tumid, blackened. Basistyle, b , blackened. Outer dististyle, d , yellow, relatively small and narrow, tapering to the subacute tip ; inner style distinctive, massive, subquadrate in outline ; beak very deep ; outer basal lobe an oval structure that is produced into a short straight black spine that is surrounded by strong black setæ ; dorsal crest very low and narrow. Phallosome, p , with the apophyses simple, expanded outwardly into pale blades, tips narrowly obtuse ; ædeagus shorter. Eighth sternite, s , blackened, margin virtually truncate, unarmed ; from the inner surface between it and the ninth sternite lies a median stout rod that is commonly trilobed at apex, surface with abundant setulæ ; in a paratype, this lobe is narrower and simple at tip (see subfigure).

Holotype, ♂, Gorongoza Mountain, Portuguese East Africa, 1,200 m., September 1957 (Stuckenberg). *Paratopotypes*, 4 ♂.

The three previously described regional species with the præscutal disk polished black and the wing tip darkened have been discussed in another paper (Durban Museum Novitates, 4 : 299-301 ; 1956). These species are *Nephrotoma ampla* Alexander, *N. cuthbertsoni* Alexander and *N. fumidapicalis* Alexander, that differ evidently among themselves in the structure of the male hypopygium which is unknown for *ampla*. The vestiture of the mediotergite of the present fly is quite different from that of *fumidapicalis*, being long and pale instead of short and black.

6. *Nephrotoma leucostigma* n. sp. Text-fig. 6.

Size medium (wing of male 12 mm.) ; general coloration yellow, præscutum with three polished black stripes, scutal lobes and suture extensively blackened ; pleura yellow, with reddened areas ; femora black, their bases yellowed, narrowly so on the fore pair ; wings whitish subhyaline, stigma scarcely indicated ; no trichia in stigmal area or outer cells of wing ; abdominal tergites yellow, patterned with darker, seventh and eighth segments blackened ; male hypopygium with the outer dististyle relatively short and broad ; inner style with the outer basal lobe a slender rod, near base of style with a small pale finger-like lobe provided with strong setæ.

Male.—Length about 12 mm. ; wing 12 mm. ; antenna about 3.5 mm.

Frontal prolongation of head light yellow ; palpi brown, passing into brownish black. Antennæ of male relatively short, about one-third the wing ; scape light yellow, pedicel dark brown, flagellum black ; flagellar segments moderately incised, much longer than the verticils. Head yellow ; vertical tubercle entire ; occipital brand pale brown, ill-delimited and inconspicuous ; a small pale brown spot on each anterior orbit, at the narrowest part of the broad anterior vertex.

Pronotum yellow. Mesonotal præscutum light yellow, with three polished black stripes, lateral pair straight, weakly darkened laterally opposite their anterior end ; scutum yellow, each lobe with two confluent black areas, extended laterad along the suture and thence backward to above the wing root ; a small isolated dark spot at the point of the suture ; scutellum testaceous yellow ; postnotum glabrous, light yellow, mediotergite slightly reddened behind, dorsal pleurotergite similarly coloured. Pleura yellow, with reddened areas on the propleura, ventral anepisternum, sternopleurite and meron, and beneath the wing root. Halteres dusky, knob vaguely more brightened. Legs with the coxæ brownish yellow, the fore pair brownish black at base, the middle pair weakly darkened ; trochanters yellow ; femora obscure yellow basally, the tips blackened, very broadly so on the fore legs where more than the outer two-thirds is included, progressively narrower on the middle and hind legs, on the latter involving about the outer seventh ; tibiæ light brown, tarsi passing into black ; claws of male toothed. Wings whitish subhyaline, the stigma scarcely indicated ; veins brown. No macrotrichia in stigmal region or in outer cells. Venation : Cell M_1 short-petiolate ; *m-cu* a short distance before the fork of M .

Abdominal tergites yellow, patterned with darker, including dark brown triangles, the anterior point extended far forward on each segment, lateral borders darkened ; first tergite darkened on central part ; basal sternites concealed by overlapping tergites ; seventh and eight segments blackened to form a ring ; hypopygium yellow. Male hypopygium (fig. 6) with the tergite, *t*, transverse, the posterior margin produced into broad lobes that are further differentiated into two unequal lobules, both spiculate, outer lateral angles further produced into acute points. Outer dististyle, *d*, relatively short and broad, about three times as long as wide ; inner style with the outer basal lobe produced into a slender sclerotized rod ; dorsal crest high, entirely glabrous, extended far forward at anterior end ; a small pale finger-like lobe provided with setæ near base of style. Gonapophysis with an inner acute basal spine, its tip blackened. Eighth sternite, *s*, extensive, posterior margin with broad rounded lobes that are provided with scattered long setæ ; median region broadly produced into a comparatively more pointed lobe provided with abundant setulæ.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Stuckenberg and Usher).

Nephrotoma leucostigma is quite distinct in the coloration and trichiation of the wings and in the structure of the male hypopygium. It is most similar to species such as *Nephrotoma subdentata* Alexander.

7. *Nephrotoma livingstonei* Alexander.

Nephrotoma livingstonei Alexander, 1921; Ann. Mag. nat. Hist., ser. 9, 7: 115–117.

Nephrotoma livingstonei Alexander, 1957; Ann. Natal Mus., 14: 134–135, fig. 3 (♂ hypopygium).

Known from Nyasaland, Northern and Southern Rhodesia.

Portuguese East Africa: Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

8. *Nephrotoma luabænsis* n. sp. Text-fig. 7.

Size medium (wing of male about 11 mm.); mesonotal præscutum yellow with three stripes, the central one brownish yellow, bordered by darker, lateral stripes polished black; pleura and pleurotergite conspicuously patterned with yellowish white and dark brown; femora brownish yellow, tips narrowly blackened; wings weakly tinted, costal region more yellowed; abdominal tergites orange yellow, with a central row of brown spots, outer segments more extensively blackened, hypopygium yellow; male hypopygium with the outer basal lobe of the inner dististyle lacking, replaced by a blackened flange near base of style, extending to the lower beak.

Male.—Length about 10–10.5 mm.; wing 11–11.5 mm.; antenna about 5 mm.

Frontal prolongation of head short, yellow, weakly infuscated dorsally; nasus stout, with a concentration of strong black setæ; palpi brown, first segment paler, the last passing into brownish black. Antennæ moderately long; scape orange, pedicel brownish orange, flagellum black; flagellar segments with basal enlargements moderately developed, segments longer than the verticils. Head yellow, more orange yellow behind, the centre of the posterior vertex more intensely so; occipital brand small and poorly differentiated, the anterior end pointed; vertical tubercle narrow, vaguely notched.

Pronotum light yellow, the sides and propleura brownish black. Mesonotal præscutum yellow with three separate stripes, the central one brownish yellow bordered laterally by darker, the latter colour more evident on the anterior half; lateral stripes polished black with a polished brown area opposite the anterior end; præscutal vestiture exceedingly small; scutum yellow, each lobe chiefly blackened, more intensely so anteriorly and laterally at the suture; scutellum, including parascutella, testaceous yellow; mediotergite unusually glabrous, light yellow, with two reddened areas on posterior third; pleurotergite with the katapleurotergite yellowish white, partly encircled by

the dark brown anapleurite, the contrasting pattern very conspicuous. Pleura whitish yellow, variegated with dark brown on the ventral anepisternum, ventral sternopleurite and ventral meron, the areas conspicuous. Halteres with stem brownish yellow, knob infuscated, slightly more yellowed on inner face of club. Legs with coxæ yellow, the fore pair with almost the proximal half dark brown, the other coxæ vaguely darkened basally; trochanters yellow; femora brownish yellow, the tips rather narrowly black, broadest on the fore pair where about the outer fifth is included; tibiæ brown, tips blackened; tarsi brown, passing into black; claws of male toothed. Wings weakly tinted, prearcular and costal fields more yellowed; stigma oval, brown; veins brown. Stigma with about 15 trichia; sparse trichia in outer end of cell R_5 . Venation: Cell M_1 barely sessile to short-petiolate.

Abdominal tergites orange yellow, each with a subcircular dark brown central mark on posterior half just before the margin, lateral tergal borders darkened; sternites orange yellow; outer segments patterned with brownish black, including the basal two-thirds of the eighth sternite; hypopygium yellow. Male hypopygium (fig. 7) with the tergite, t , transverse, the posterior border with two broad lobes separated by a deep median notch, the lobes more shallowly emarginate to form two lobules, provided with sparse spicules on both upper and lower surfaces. Outer dististyle, d , relatively long and narrow; inner style without a distinct outer basal lobe but with a blackened ridge or flange near the base, extended across the face of the style to the lower beak, the margin produced into three blackened points and lobes; dorsal crest relatively steep at either end. Gonapophysis, g , with a spine at base. Eighth sternite, s , large, posterior margin weakly emarginate to form two broadly rounded lobes, each with a weak concentration of setæ.

Holotype, ♂, Luabo, Portuguese East Africa, October 1957 (Usher). *Paratopotype*, a broken ♂.

Nephrotoma luabænsis is most similar to species such as *N. perlepida* Alexander and *N. thysia* Alexander, differing in the details of coloration and structure of the male hypopygium. The pattern of the pleura and pleurotergite is noteworthy.

9. *Nephrotoma tigrina* Alexander.

Nephrotoma tigrina Alexander, 1917; Ann. S. Afr. Mus., 17: 177-179, fig. 39 (venation), fig. 67 (♂ hypopygium).

Portuguese East Africa: Lourenço Marques, February 1909 (C. W. Howard); types.

10. *Nephrotoma tricineta* Alexander.

Nephrotoma tricineta Alexander, 1921; Ann. Mag. nat. Hist., ser. 9, 7: 114-115.

Nephrotoma tricineta Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7: 138, figs. 25, 26 (♂ hypopygium).

The type was from Mount Mlanje, Nyasaland, taken in November 1912 by Neave.

Portuguese East Africa : Tumbine Mountain, 5,400 ft., July 1957, April 29, 1958 (Stuckenberg and Usher).

11. *Tipula (Tipula) frater* Alexander.

Tipula frater Alexander, 1921 ; Ann. S. Afr. Mus., 18 : 224–226, fig. 20 (venation), fig. 26 (♂ hypopygium).

Known from Natal, Transvaal and Southern Rhodesia.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

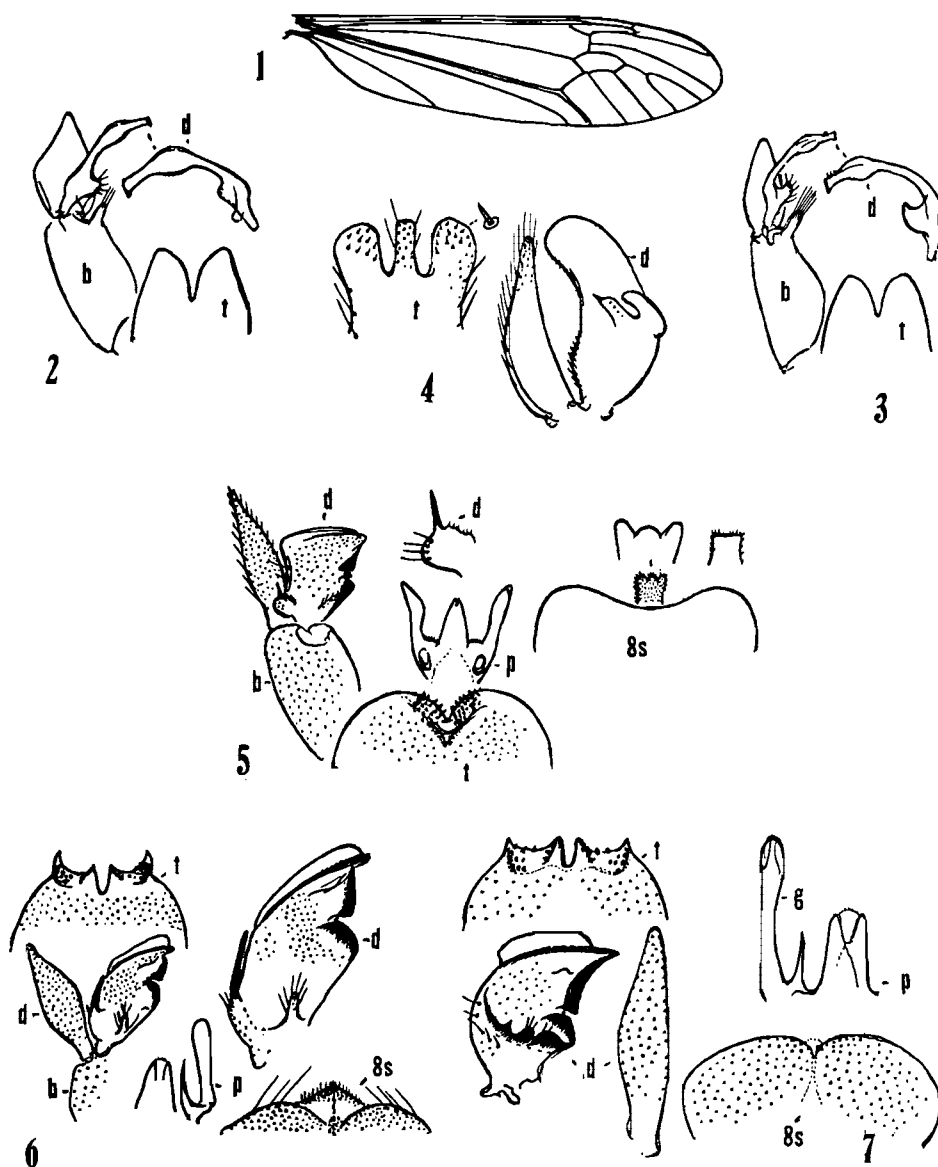
12. *Tipula (Acutipula) amissa* n. sp. Text-figs. 1, 4.

Size medium (wing of male 15 mm.) ; general coloration yellow, præscutum and scutum patterned with brown ; antennæ of male elongate, scape and pedicel yellow, flagellum black ; legs brown, claws of male toothed ; wings whitish subhyaline, cell *Sc* and stigma dark brown ; *Rs* short, vein R_{1+2} chiefly atrophied ; abdomen orange, tergites weakly darkened in central and posterior parts, subterminal segments blackened to form a broad ring ; male hypopygium with the tergite trilobed, the narrow central part truncated at tip, the lateral blades broader ; inner dististyle with the beak broad, densely provided with close rows of short curved setæ.

Male.—Length about 16 mm. ; wing 15 mm. ; antenna about 6.5 mm.

Frontal prolongation of head orange yellow ; palpi brown, terminal segment yellow. Antennæ of male relatively long, as shown by the measurements ; scape and pedicel light yellow, flagellum black ; flagellar segments elongate-cylindrical, with very small basal enlargements, subequal to or slightly exceeding the longest verticils, clothed with a dense erect white pubescence. Head clear light orange yellow, anterior vertex more testaceous ; vertical tubercle lacking.

Pronotum light orange yellow. Mesonotum yellow, the præscutum with four entire brown stripes, the interspaces suffused, especially the anterior end of the median vitta ; lateral border before suture weakly darkened, the colour extended ventrad on to the dorsopleural region ; præscutal vestiture very small and sparse, yellow ; scutal lobes weakly suffused, each with two slightly separated brown areas, the posterior one larger, region of suture whitened ; scutellum light yellow, parascutella weakly darkened ; mediotergite pale yellow, the anterior half pale brown, the posterior margin with two small darker brown spots. Pleura clear light yellow. Halteres infuscated, base of stem narrowly yellow. Legs with coxæ and trochanters yellow ; femora obscure yellow basally, passing into brown and finally to brownish black ; tibiæ and tarsi brown ; claws of male toothed. Wings (fig. 1) whitish subhyaline, cell *Sc* and the stigma dark brown ; veins brownish black. Venation :



TEXT-FIGS. 1-7.

1. *Tipula (Acutipula) amissa* n. sp. ; venation. 2. *Ctenacroscelis brunneus brunneus* (Bigot) ; male hypopygium. 3. *Ctenacroscelis brunneus basiproductus* n. subsp. ; male hypopygium. 4. *Tipula (Acutipula) amissa* n. sp. ; male hypopygium. 5. *Nephrotoma gorongozæ* n. sp. ; male hypopygium. 6. *Nephrotoma leucostigma* n. sp. ; male hypopygium. 7. *Nephrotoma luabensis* n. sp. ; male hypopygium.
(Hypopygial symbols: *b*, basistyle ; *d*, dististyle ; *g*, gonapophysis ; *p*, phallosome ; *s*, 8th sternite ; *t*, 9th tergite.)

Rs short, about two-thirds *m-cu* ; vein R_{1+2} chiefly atrophied, leaving a short basal spur ; cell 1st M_2 large ; cell M_1 nearly three times its petiole ; *m-cu* shortly before the fork of M_{3+4} ; cell 2nd *A* broad.

Abdominal tergites orange, weakly darkened medially, the posterior borders of the segments more evidently so, extreme bases of segments pale, sternites yellow ; subterminal segments black to form a conspicuous ring ; hypopygium yellow. Male hypopygium (fig. 4) with the tergite, *t*, produced into a slender median lobe that is subtended on either side by a flattened blade, on a slide appearing about as shown ; median lobe parallel-sided, the tip truncate, lateral blades broadly obtuse at tip, near apex with microscopic spinulæ. Outer dististyle, *d*, about four times as long as its greatest width, the outer third narrowed, with long setæ ; inner style with the beak broad, tip obtuse, the surface with close rows of very abundant short curved setæ ; on face of style near base with a pale blade and a smaller lobe that terminates in a blackened spine.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Usher and Stuckenberg).

In my key to the Tropical African species of *Tipula* (Ruwenzori Exped. 1934-35, 1, No. 7 : 165-169 ; 1956) the present fly runs to *Tipula (Acutipula) sjöstedti* Alexander, a very different fly having vein R_{1+2} preserved. There are no close relatives so far discovered in the South African fauna.

13. *Tipula (Acutipula) silinda* Alexander.

Tipula silinda Alexander, 1920 ; Canad. Ent., 52 : 148-149.

Previously known from Southern Rhodesia.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg). A single female ; although the male sex is not available I regard the identification as being correct.

14. *Dolichocheza (Trichodolichocheza) vumbicola* Alexander.

Dolichocheza (Trichodolichocheza) vumbicola Alexander, 1946 ; Proc. Roy. ent. Soc. Lond., ser. B, 15 : 133-134.

Dolichocheza (Trichodolichocheza) vumbicola Alexander, 1957 ; Ann. Natal Mus., 14 : 138.

Portuguese East Africa : Spungabera, January 21, 1955 (Stuckenberg).

15. *Dolichocheza (Dolichocheza) cuthbertsoniana* Alexander.

Dolichocheza (Dolichocheza) cuthbertsoniana Alexander, 1945 ; Proc. Roy. ent. Soc. Lond., ser. B, 14 : 95-96.

The types were from Southern Rhodesia.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg) ; one ♀.

LIMONIINÆ.

LIMONINI.

16. *Limonia (Limonia) bethæ* Alexander.

Limonia (Limonia) bethæ Alexander, 1945 ; Proc. Roy. ent. Soc. Lond., ser. B, 14 : 99-100.

Southern Rhodesia. What appears to be an identical species or at most a weak cline occurs in Madagascar and Réunion.

Portuguese East Africa : Gorongoza Mountain, 1,200 m., September 1957 (Stuckenberg).

17. *Limonia (Limonia) ditior* Alexander.

Limonia (Limonia) ditior Alexander, 1946 ; Proc. Roy. ent. Soc. Lond., ser. B, 15 : 134-135.

The type was from the Vumba Mountains, Southern Rhodesia. Known also from Uganda. The present material is very similar to the type but has the tips of the femora entirely black, preceded by a subequal obscure yellow ring.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg). Tumbine Mountain, April 29, 1958 (Stuckenberg).

18. *Limonia (Limonia) irrorata* Enderlein.

Limonia irrorata Enderlein, 1912 ; Zool. Jahr., Syst., 32 : 74-75, fig. V₁ (wing).

Widespread in south-eastern Africa—Southern Rhodesia, Transvaal, Natal.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

19. *Limonia (Limonia) nyasænsis* (Alexander).

Limnobia nyasænsis Alexander, 1920 ; Ann. Mag. nat. Hist., ser. 9, 6 : 10-11.

Described from Nyasaland. Further material from Blantyre, January 1958 (Usher).

Portuguese East Africa : Tumbine Mountain (Milange), April 29, 1958 (Usher and Stuckenberg).

20. *Limonia (Limonia) shawi* (Alexander).

Dicranomyia shawi Alexander, 1921 ; Ann. Mag. nat. Hist., ser. 9, 7 : 306-307.

Limonia (Limonia) shawi Alexander, 1956 ; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7 : 240, fig. 90 (♂ hypopygium).

Widely distributed in eastern and south-eastern Africa—Uganda, Kenya, Tanganyika, Southern Rhodesia, Natal.

Portuguese East Africa : Gorongoza Mountain, 1,200 m., September 1957 (Stuckenberg).

21. *Limonia (Dicranomyia) gardineri* (Edwards).*Dicranomyia gardineri* Edwards, 1912; Trans. Linn. Soc. Lond., 15: 197-198.*Dicranomyia gardineri* Alexander, 1921; Ann. S. Afr. Mus., 18: 182, pl. 3, fig. 1 (wing).

South-eastern Africa—Southern Rhodesia, Transvaal, Natal. Described from the Seychelles Islands.

Portuguese East Africa: Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

22. *Limonia (Dicranomyia) guttula* (Alexander).*Dicranomyia guttula* Alexander, 1915; Canad. Ent., 47: 80, fig. (wing).

Portuguese East Africa: Lourenço Marques (type). Luabo, July, August 1957 (Usher).

23. *Limonia (Dicranomyia) luabænsis* n. sp. Text-figs. 8, 12.

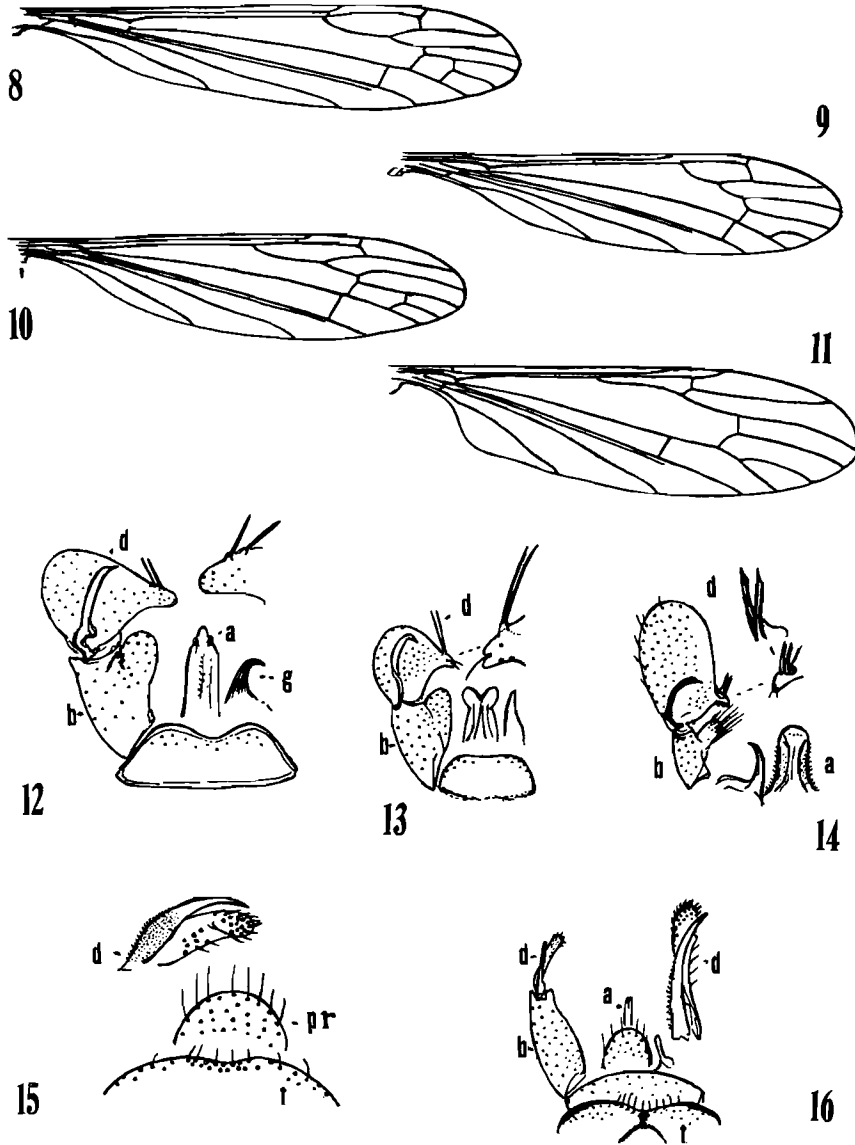
Belongs to the *tristis (libera)* group; general coloration brownish grey, scutellum whitened; pleura brownish grey, more or less patterned with brown; legs brownish yellow; wings weakly darkened, restrictedly patterned with brown, including a small darkening at arculus; male hypopygium with posterior border of tergite very gently and evenly emarginate; basistyle with a single accessory tubercle; ventral dististyle with rostral prolongation broad, obtuse at tip; gonapophysis with mesal-apical lobe a slender darkened spine.

Male.—Length about 5 mm.; wing 6 mm.

Female.—Length about 6 mm.; wing 7 mm.

Rostrum and palpi dark brown. Antennæ with scape dark brown, pedicel and flagellum brownish black; flagellar segments oval, the outer ones more elongate. Head dark grey; anterior vertex narrow.

Pronotum brownish testaceous to brown. Mesonotal præscutum brownish grey, clearer grey laterally; three darker brown discal areas, including a central anterior stripe, paired posterior intermediate stripes and a darkened spot at anterior ends of the otherwise subobsolete lateral stripes; scutal lobes brown; scutellum whitened; postnotum dark brown, more or less pruinose. Pleura brownish grey, more or less patterned with brown on the anepisternum and sternopleurite. Halteres with stem whitened, knob infuscated. Legs with coxæ and trochanters testaceous; remainder of legs obscure yellow to brownish yellow, the tips of the femora vaguely darkened; outer tarsal segments infuscated. Wings (fig. 8) weakly darkened, prearcular and costal fields more yellowed; a restricted darker brown pattern, including the small oval stigma and areas at origin of *Rs*, cord and outer end of cell 1st *M*₂; a small but evident darkening at arculus; veins pale, darker in the patterned areas. Venation: *Sc* relatively long, *Sc*₁ ending opposite or shortly beyond origin of *Rs*, *Sc*₂ near its tip; cell 1st *M*₂ variable in length, from unusually short (paratype, as figured) to long-rectangular; *m-cu* at or some distance before fork of *M*, the extreme as figured.



TEXT-FIGS. 8-16.

8. *Limonia* (*Dicranomyia*) *luabænsis* n. sp.; venation. 9. *Limonia* (*Rhipidia*) *endecamera* n. sp.; venation. 10. *Limonia* (*Geranomyia*) *euryphallus* n. sp.; venation. 11. *Antocha* (*Orimargula*) *setosa* n. sp.; venation. 12. *Limonia* (*Dicranomyia*) *luabænsis* n. sp.; male hypopygium. 13. *Limonia* (*Rhipidia*) *endecamera* n. sp.; male hypopygium. 14. *Limonia* (*Geranomyia*) *euryphallus* n. sp.; male hypopygium. 15. *Antocha* (*Orimargula*) *brevicornis* n. sp.; male hypopygium. 16. *Antocha* (*Orimargula*) *setosa* n. sp.; male hypopygium.
(Hypopygial symbols: a, ædeagus; b, basistyle; d, dististyle; g, gonapophysis; pr, proctiger.)

Abdomen brown, hypopygium more fulvous brown. Male hypopygium (fig. 12) with the tergite, *t*, transverse, narrowed outwardly, the posterior border very gently and evenly emarginate, with relatively few scattered setæ, those on the dorsal surface from larger punctures. Basistyle, *b*, with a single accessory tubercle ventromesal lobe large, obtuse at tip. Dorsal dististyle, *d*, nearly straight, the tip suddenly narrowed into a spine; ventral style slightly more extensive than the basistyle, rostral prolongation broad, its apex obtusely rounded; two straight rostral spines from small tubercles, placed close together, one slightly more basal in position. Gonapophysis, *g*, with the mesal-apical lobe a slender darkened spine, gently curved to the acute tip. Ædeagus with the tip simple, the surface at mid-line with abundant microscopic setulæ.

Holotype, ♂, Luabo, Portuguese East Africa, June 1957 (Usher). Allotopotype, ♀, July 1957. *Paratopotypes*, 1 ♂, 1 ♀, June, August 1957 (Usher).

The most similar regional species is *Limonia* (*Dicranomyia*) *umkomazamæ* Alexander, which differs especially in the structure of the male hypopygium, particularly the tergite and dististyles.

24. *Limonia* (*Dicranomyia*) *tipulipes* (Karsch).

Dicranomyia tipulipes Karsch, 1886; Ent. Nachricht., 12 : 51.

Limonia tipulipes Wood, 1952; Ann. S. Afr. Mus., 39 : 170-176, figs. 50-52.

Limonia (*Dicranomyia*) *tipulipes* Alexander, 1954; Mauritius Inst. Bull., 3 : 221, fig. 2 (venation); detailed synonymy.

Widely distributed in southern and eastern Africa, Madagascar, and certain of the Mascarene islands.

Portuguese East Africa: Gorongoza Mountain, 840 m., September 1957 (Stuckenberg). Tumbine Mountain, 5,400 ft., July 1957 (Usher and Stuckenberg).

25. *Limonia* (*Rhipidia*) *endecamera* n. sp. Text-figs. 9, 13.

Belongs to the *morionella* group; general coloration of head and mesonotum dark brown, thoracic pleura brownish yellow, patterned with darker; antennæ of male 11-segmented, with relatively short branches; legs pale brown, tarsal segments two to five snowy white; wings subhyaline, stigma short-oval, brown, *Sc*₁ very long; ventral dististyle of male hypopygium with two long rostral spines from a low common tubercle.

Male.—Length about 4 mm.; wing 4.3 mm.; antenna about 1.2 mm.

Rostrum brownish black, a little shorter than the remainder of head; palpi brownish black. Antennæ 11-segmented; brownish black, the apices of the flagellar stems slightly paler; first flagellar segment abruptly enlarged but unbranched; second segment with short branches; segment three to eight, inclusive, each with two relatively short branches, the longest subequal to or only slightly longer than the segment; terminal segment elongate.

Head dark brown ; anterior vertex moderately broad, nearly twice the diameter of the scape.

Cervical sclerites and pronotal scutum dark brown, scutellum paler. Mesonotum chiefly dark brown, without pattern, surface subnitidous. Pleura much paler, light brownish yellow, especially the propleura and dorsal pteropleurite, the mesepisternum darker brown. Halteres with stem pale, knob brownish black. Legs with coxæ brownish yellow, trochanters paler ; remainder of legs pale brown, tarsal segments beyond the first snowy white. Wings (fig. 9) subhyaline ; stigma short-oval, brown ; veins light brown. Veins beyond cord, with the outer ends of *Rs* and *M*, with strong macrotrichia. Venation : *Sc*₁ ending shortly before origin of *Rs*, *Sc*₂ far retracted, *Sc*₁ alone longer than *R*₃ or nearly one-half longer than *Rs* ; cell *M*₂ open by the atrophy of *m* ; *m-cu* just before the fork of *M*.

Abdominal tergites dark brown, sternites obscure yellow ; hypopygium darkened basally. Male hypopygium (fig. 13) with the tergite relatively small, the posterior border subtruncate. Basistyle, *b*, with the ventromesal lobe of moderate size, pale ; basistyle and ventral dististyle subequal in extent. Dorsal dististyle, *d*, a gently curved pale rod, the acute tip slightly decurved ; ventral style short-oval ; rostral prolongation stout, with two long pale spines from the summit of a low tubercle. Gonapophysis with mesal-apical lobe erect, relatively slender, narrowed to a point. Apical lobes of ædeagus large.

Holotype, ♂, Gorongoza Mountain, Portuguese East Africa, 840 m., September 1957 (Stuckenberg).

Limonia (Rhipidia) endecamera is noteworthy in the reduced number of antennal segments, together with unusually short branches. The other regional members of the *morionella* group include *L. (R.) aoneura* Alexander, *L. (R.) extraria* Alexander, *L. (R.) incompleta* (Riedel) and *L. (R.) submorionella* Alexander.

26. *Limonia (Rhipidia) miosema* Speiser.

Limonia miosema Speiser, 1909 ; Kilimanjaro-Meru Zool. Exped., 1905-06, 10 Dipt., 4 Orthorapha Nematocera, 50-51.

Widely distributed in eastern Africa—Belgian Congo, Uganda, Tanganyika, Southern Rhodesia.

Portuguese East Africa : Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

27. *Limonia (Rhipidia) seydeli* Alexander.

Limonia (Rhipidia) seydeli Alexander, 1956 ; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7 : 218-220, fig. 70 (♂ hypopygium).

Described from the southern Belgian Congo.

Portuguese East Africa : Luabo, April 1958 (Usher).

28. *Limonia (Geranomyia) alberticola* Alexander.

Limonia (Geranomyia) alberticola Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7: 208-209.

Uganda and Belgian Congo.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Usher and Stuckenberg).

29. *Limonia (Geranomyia) errana* Alexander.

Limonia (Geranomyia) errana Alexander, 1930; Rev. Zool. Bot. Afr., 19: 343-344, fig. 3 (♂ hypopygium).

Known hitherto from the Belgian Congo.

Portuguese East Africa: Gorongoza Mountain, 840 m., September 1957 (Stuckenberg). Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

30. *Limonia (Geranomyia) euryphallus* n. sp. Text-figs. 10, 14.

General coloration of thorax yellow, unpatterned; rostrum darkened; head light grey; legs obscure yellow, fore femora with a narrowly darkened terminal ring, this less evident on the other legs; wings subhyaline, prearcular and costal fields light yellow, stigma medium brown; *Sc* and cell 1st M_2 long; male hypopygium with the ventral dististyle very large, rostral prolongation short and stout, with two short spines; gonapophysis with mesal-apical lobe long and slender, narrowed to the acute darkened tip; ædeagus broad, apex obtuse, surface with abundant erect setulæ.

Male.—Length, excluding rostrum, about 6.5 mm.; wing 6.4 mm.; rostrum about 2.5 mm.

Rostrum more than one-third the length of wing, obscure brownish yellow basally, beyond the palpi passing into brown; palpi dark brown, apparently reduced to a single segment. Antennæ dark brown; flagellar segments oval, with short verticils. Head light grey; anterior vertex narrow, elevated in dried specimens, apparently narrower than the diameter of the scape.

Pronotum and mesonotum almost uniformly yellow, the dorsum slightly darker than the pale yellow pleura; præscutal setæ small and sparse. Halteres with stem yellow, knob infuscated. Legs with coxæ and trochanters pale yellow; femora obscure yellow with a more darkened ring that is terminal or virtually so, most evident on the fore femora, scarcely evident on the posterior legs; tibiæ and tarsi pale brownish yellow. Wings (fig. 10) subhyaline, the prearcular and costal fields light yellow; stigma oval, medium brown; veins light brown, yellowed in the brightened fields. Venation: *Sc* long, *Sc*₁ ending about opposite four-fifths *Rs*; cell 1st M_2 elongate, exceeding any of the veins beyond it; *m-cu* just before the fork of *M*.

Abdomen obscure brownish yellow, sternites paler; hypopygium weakly darkened, especially the styli. Male hypopygium (fig. 14) with the basistyle,

b, very small, its area only about one-fourth that of the ventral dististyle; ventromesal lobe with very long setæ. Ventral dististyle, *d*, with short setæ; rostral prolongation short and stout, spines short, placed close together near base of the prolongation. Gonapophysis with the mesal-apical lobe long and slender, narrowed very gradually to the acute darkened tip. Ædeagus, *a*, unusually broad, apex obtuse, surface with abundant short erect setulæ.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Stuckenberg and Usher).

Although superficially much like *Limonia* (*Geranomyia*) *mashonica* (Alexander), the present fly is closer to *L. (G.) synaporosa* (Speiser), differing in relatively slight details of the male hypopygium.

31. *Limonia* (*Geranomyia*) *mashonica* (Alexander).

Geranomyia (*Geranomyia*) *mashonica* Alexander, 1920; Ann. Mag. nat. Hist., ser. 9. 5: 341.

The type was from Salisbury, Southern Rhodesia, collected by the late Sir Guy A. K. Marshall. There is some doubt concerning the identity of the present fly due to inability to re-study the holotype. In the latter the legs were broken and the pattern of the femora is unknown. The present material, and further numerous topotypical specimens, have a narrow but conspicuous subterminal brown ring on the femora but disagree with the holotype in the longer and more conspicuous costal fringe of the wing. In the holotype the setæ of costa are unusually short and inconspicuous. In my key to the Tropical African species of the subgenus (Ruwenzori Expedition, 1, No. 7: 199–208; 1956) the fly was identified with species having the legs uniformly darkened but here again the identification of such material must be questioned. The male genitalia of the holotype, now preserved in the British Museum of Natural History, should be studied.

Portuguese East Africa: Luabo, July 1957 (Usher).

32. *Limonia* (*Pseudoglochina*) *pamela* n. sp.

General coloration of mesonotum dark brown, pleura yellow, the ventral sternopleura dark brown; antennæ black, relatively long; tibiæ white with a broad black subterminal ring, fore and middle tibiæ with a much narrower sub-basal annulus, tarsi white; wings subhyaline, stigma oval, dark brown; *Sc* long, *Sc*₁ ending beyond two-thirds the length of *Rs*; cell 2nd *M*₂ deep, about two and one-half to three times its petiole; abdominal segments bi-coloured, dark brown, the posterior borders of the segments broadly obscure yellow.

Male.—Length about 5.8–6 mm.; wing 6–6.5 mm.

Female.—Length about 6.5 mm.; wing 6.8 mm.

Rostrum testaceous yellow; palpi black. Antennæ black throughout, relatively elongate, especially in the male, if bent backward reaching about to the root of the halteres; flagellar segments oval, strongly constricted out-

wardly into apical necks; terminal segment elongate, narrowed on apical half. Head brown, more cinnamon brown behind.

Cervical region and prothorax yellow. Mesonotal præscutum and scutum dark brown; posterior sclerites of notum brown, with a more or less distinct central paler line. Pleura, including the dorsopleural membrane, yellow; ventral sternopleurite abruptly dark brown, the mid-sternal region yellow. Halteres with stem dirty white, knob dark brown. Legs with the coxæ and trochanters yellow; femora brownish yellow to yellow, clearer basally, passing into dark brown at tips; tibiæ white, fore and middle pairs with a broad subterminal dark ring that is more extensive than the white tip and a very narrow sub-basal annulus; posterior tibiæ with a very broad black ring at and beyond mid-length, this considerably more extensive than the white apex; tarsi white. Wings subhyaline, the oval stigma dark brown, conspicuous; veins brown. Venation: *Sc* long, *Sc*₁ ending beyond two-thirds the length of *Rs*, *Sc*₂ some distance from its tip; *R*₄₊₅ about two-thirds *Rs*; cell 2nd *M*₂ deep, from about two and one-half to three times its petiole; *m-cu* at or close to fork of *M*.

Abdominal segments bicoloured, dark brown, the posterior borders of the individual segments broadly obscure yellow, more extensively so on the sternites; hypopygium dark brown.

Holotype, ♂, Blantyre, Nyasaland, January 1958 (P. J. Usher). *Allotopotype*, ♀. *Paratopotype*, 1 ♂.

This unusually interesting fly is named for the collector, Mrs. Brian R. Stuckenberg (née Pamela J. Usher), to whom we are indebted for much of our knowledge of the Tipulidæ of Portuguese East Africa. The present is the first record of any species of the subgenus in the Ethiopian region, all others being Oriental and Australasian. It requires no comparison with other described species.

33. *Limonia* (*Euglochina*) *connectans* (Alexander).

Dicranomyia connectans Alexander, 1920; Ann. Mag. nat. Hist., ser. 9, 5: 54.

Limonia (*Euglochina*) *connectans* Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7: 208.

Limonia (*Euglochina*) *connectans* Verdcourt, 1958; Ent. Mo. Mag., ser. 4, 223: 153.

Widespread in tropical Africa, from the Cameroons, Belgian Congo north-east to Darfur, Uganda, Kenya and Southern Rhodesia. An interesting account of the habits of the fly and its association with spiders' webs has been given by Verdcourt in the cited reference. It may be noted that many, and perhaps all, members of the subgenera *Euglochina* and *Thrypticomys* in the genus *Limonia* have such a relationship with spiders and an extensive literature on the subject has accumulated.

Portuguese East Africa: Gorongoza Mountain, 840 m., September 1957 (Stuckenberg). Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

34. *Limonia (Thrypticomymia) nigeriensis* (Alexander).

Dicranomyia (Thrypticomymia) nigeriensis Alexander, 1921; Ann. Mag. nat. Hist., ser. 9, 8 : 161.
Limonia (Thrypticomymia) nigeriensis Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7 : 201.

Described from Nigeria.

Portuguese East Africa : Luabo, June 1957 (Usher).

35. *Limonia (Thrypticomymia) niveitibia* Alexander.

Limonia (Thrypticomymia) niveitibia Alexander, 1957; Ann. Natal Mus., 14 : 143-145, fig. 7 (♂ hypopygium), fig. 11 (venation).

Portuguese East Africa : Spungabera, January 21, 1955 (Stuckenberg); type.

36. *Antocha (Orimargula) brevicornis* n. sp. Text-fig. 15.

Size small (wing of male under 5 mm.); general coloration of head and thorax grey, præscutum with three faintly differentiated darker brown stripes; antennæ short, black throughout; legs with a basal tubercle on last tarsal segment, claws with three long slender spines; wings with veins unusually glabrous, macrotrichia lacking on M_1 , M_{3+4} and M_4 and restricted to a few at extreme outer ends of R_3 and M_3 ; male hypopygium with the posterior border of tergite very shallowly emarginate, lobes without thickened margins; dististyles separate.

Male.—Length about 4.5 mm.; wing 4.8 mm.; antenna about 0.8 mm.

Rostrum and palpi black. Antennæ unusually short, black throughout; flagellar segments oval, broadly interconnected, the outer segments progressively shorter; verticils subequal to the segments. Head brownish grey; anterior vertex broad.

Pronotum and cervical region brownish grey, anterior pretergites barely indicated by a yellow line. Mesonotal præscutum dark grey with three slightly darker brown stripes; posterior sclerites of notum dark grey, scutal lobes faintly darker. Pleura brownish grey, more brownish yellow surrounding the wing root. Halteres with stem yellowed, knob dark brown. Legs with coxæ infuscated; trochanters obscure yellow; remainder of legs medium brown; last tarsal segment with a conspicuous basal tubercle or epicondyle; claws long, with three slender spines, the outermost longest. Wings faintly greyish subhyaline, prearcular and costal fields more yellowed; veins pale brown, more yellowed in the brightened fields. Macrotrichia of veins very reduced in number, R_3 with only four or five at extreme outer end, M_{1+2} on outer half, M_3 with only two near outer end, M , M_{3+4} and M_4 entirely glabrous. Venation: Anterior branch of R_s very faint to semiatrophied; $m-cu$ nearly twice its length before the fork of M .

Abdomen dark brownish grey, outer segments darker. Male hypopygium (fig. 15) with the tergite, t , very narrowly transverse, median region of posterior

border very gently emarginate, the edges of the lobes not thickened ; marginal setæ not especially concentrated at the mid-region as in *transvaalia*. Proctiger unusually broad, apex rounded, the outline appearing semioval. Dististyles, *d*, separate, outer style broad and densely setuliferous on basal half, thence narrowed into a spine, tip subacute. *Ædeagus* stout.

Holotype, ♂, Gorongoza Mountain, Portuguese East Africa, 840 m., September 1957 (Stuckenberg).

Antocha (Orimargula) brevicornis is distinguished from *A. (O.) transvaalia* Alexander, the most nearly allied regional species, by the greater reduction in number of macrotrichia of the wing veins and in the structure of the male hypopygium, particularly the tergite and proctiger.

37. *Antocha (Orimargula) setosa* n. sp. Text-figs. 11, 16.

Size medium (wing up to 6 mm.); antennæ of moderate length ; legs brownish yellow, last tarsal segment without basal tubercle ; claws with a major spine before mid-length, the more basal ones reduced in size ; macrotrichia on outer veins, including all outer medial veins ; male hypopygium with the posterior border of tergite emarginate, the lateral lobes with thickened margins ; dististyles separate.

Male.—Length about 3.5–3.8 mm. ; wing 5–6 mm. ; antenna about 1.2–1.4 mm.

Female.—Length about 4.5 mm. ; wing 6 mm.

Rostrum light brown, palpi a little darker. Antennæ light to darker brown, of moderate length, as shown by the measurements ; flagellar segments oval, with dense pale erect setæ. Head grey.

Thoracic notum almost uniformly brownish yellow, without distinct pattern, pleura somewhat clearer yellow. Halteres with stem yellow, knob weakly infuscated. Legs with coxæ and trochanters yellow ; remainder of legs brownish yellow to brown ; last tarsal segment simple, without basal tubercle or epicondyle but with a distinct oblique one at outer end ; claws with a single major spine before mid-length, the other more basal spines much reduced. Wings (fig. 11) faintly tinted, unpatterned ; veins pale to somewhat darker brown. Macrotrichia on outer half or less of vein R_3 , all of distal section of R_{4+5} , and over the whole extent of the outer medial veins ; distal section of M usually with trichia over its whole length ; a few trichia on outer end of Cu_1 . Venation as in the subgenus ; Rs and its anterior branch weak.

Abdomen brownish yellow to dark brown, the sternites paler ; subterminal segments more darkened ; hypopygium light brown. Male hypopygium (fig. 16) with the tergite transverse, its posterior border very shallowly emarginate, with abundant long pale setæ ; lobes very low, edges narrowly sclerotized. Proctiger semioval, with long setæ. Basistyle, *b*, simple. Dististyles, *d*, two, separated almost to their bases ; outer style a narrow blade

that tapers to a subacute tip, surface of basal half with abundant microscopic setulae; inner style a little longer, with scattered marginal setae and a concentration of short spine-like bristles at tip. Gonapophysis appearing as a very slender blade, its tip obtuse. Aedeagus relatively slender.

Holotype, ♂, Gorongoza Mountain, Portuguese East Africa, 840 m., September 1957 (Stuckenberg). *Allotopotype*, ♀. *Paratopotypes*, 8 ♂♀.

The closest regional species is *Antocha (Orimargula) melina* Alexander, which has the structure of the legs and trichiation of the veins much the same but with the details of the male hypopygium distinct. The superficially similar *A. (O.) transvaalia* (Alexander) has the structure of the legs and the wing trichiation quite different.

38. *Helius (Helius) capensis* (Alexander).

Rhamphidia capensis Alexander, 1917; Ann. S. Afr. Mus., 17: 145-146.

Helius capensis Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7: 252.

Widespread in eastern and south-eastern Africa—Uganda, Kenya, Southern Rhodesia, Transvaal, Natal.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

39. *Helius (Helius) dugaldi* Alexander.

Helius (Helius) dugaldi Alexander, 1945; Proc. Roy. ent. Soc. Lond., ser. B, 14: 100-102.

Well distributed in Southern Rhodesia and Natal.

Portuguese East Africa: Gorongoza Mountain, 840-1,200 m., September 1957 (Stuckenberg).

40. *Helius (Helius) flavitarsis* (Alexander).

Rhamphidia flavitarsis Alexander, 1920; Ann. Mag. Nat. Hist. ser. 9, 5: 55-56.

Described from the Cameroons, known also from Uganda. The present record represents a noteworthy southern extension of range.

Portuguese East Africa: Vila Paiva de Andrada, 430 m., September 1957 (Stuckenberg).

41. *Helius (Helius) paramorosus* Alexander.

Helius (Helius) paramorosus Alexander, 1949; Proc. Roy. ent. Soc. Lond., ser. B, 18: 154-155.

Known from Uganda and Southern Rhodesia.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

42. *Orimarga (Orimarga) brevicula* Alexander.

Orimarga (Orimarga) brevicula Alexander, 1956; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7: 256-257.

The types were from Uganda. The thoracic dorsum of the present fly is darker than in the types but in all other respects the agreement is close and the identification seems certain.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

HEXATOMINI.

43. *Paradelphomyia (Oxyrhiza) annulipes* n. sp. Text-fig. 17.

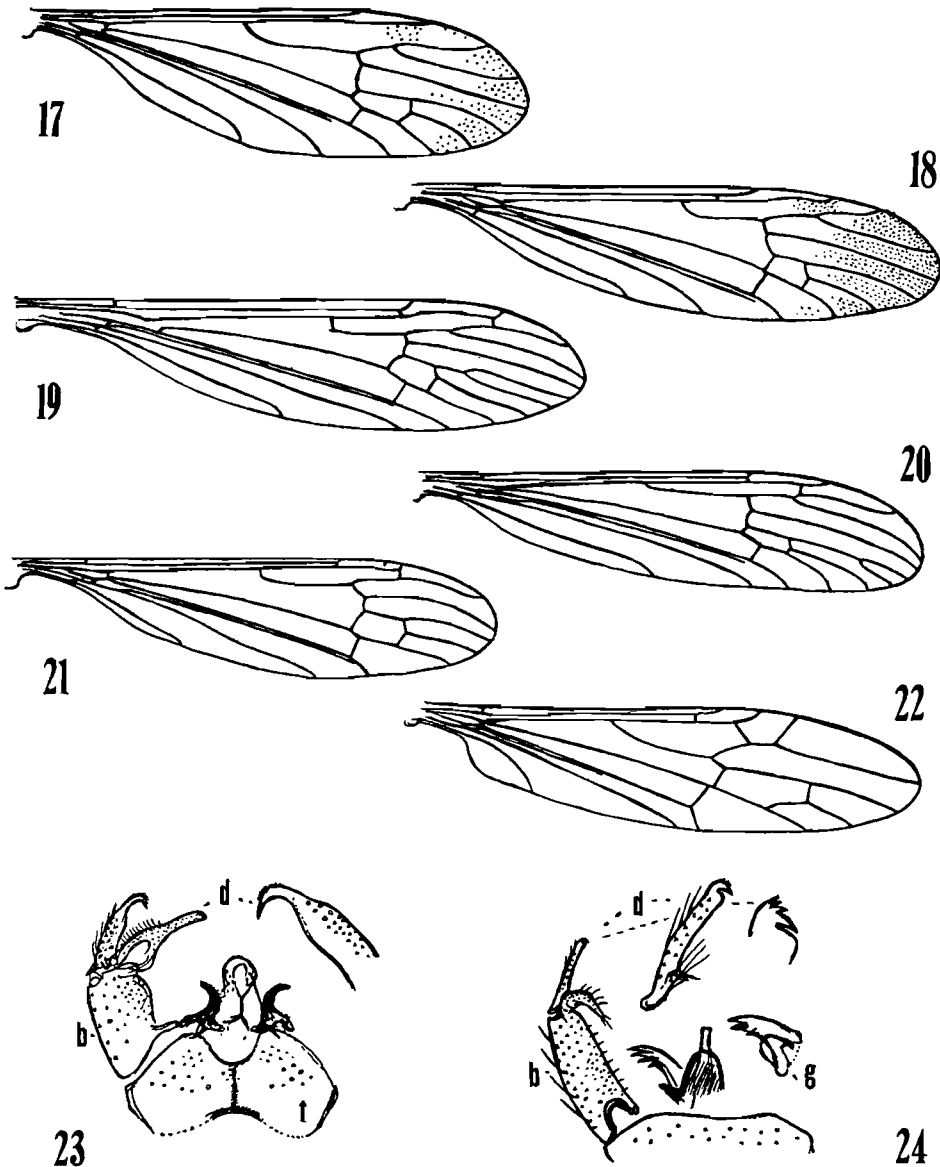
Size small (wing of female about 5.3 mm.); general coloration of thorax brownish black, with lighter brown pollen; pleura light brown with two darker brown longitudinal stripes; legs with coxæ uniformly yellow; femora light brown with a narrow brownish black subterminal ring that is slightly broader than the obscure yellow tip; wings brownish yellow, conspicuously patterned with brown.

Female.—Length about 5 mm.; wing 5.3 mm.

Rostrum brown; palpi black. Antennæ with the scape brown, pollinose; pedicel relatively large, darker brown; flagellum brown, basal segments suboval, outer ones elongate, with long conspicuous verticils. Head dark brown, with lighter brown pollen.

Pronotum light brown pollinose. Mesonotal præscutum chiefly brownish black, the posterior and lateral parts more light brown pollinose; posterior sclerites more heavily pollinose to appear brown. Pleura light brown with two darker brown stripes, the narrow dorsal one extending from the cervical region across the dorsal pleurites to beneath the wing root, the lower area occupying chiefly the ventral sternopleurite. Halteres with stem yellow at base, remainder broken. Legs with coxæ pale yellow, contrasting with the darkened pleura, their bases not darkened; trochanters obscure yellow; femora light brown with a brownish black subterminal ring that is only a little broader than the obscure yellow tip; tibiæ and basitarsi pale brown, tips vaguely darker; remainder of tarsi darker brown; tibial spurs conspicuous. Wings (fig. 17) brownish yellow, costal border somewhat clearer yellow; a conspicuous brown spotted pattern, including areas at origin of Rs , Sc_2 , stigma, and as a marginal series at ends of all veins excepting R_5 ; cord and outer end of cell 1st M_2 narrowly seamed with brown; veins brownish yellow, darker in the patterned areas. Macrotrichia in stigmal area and in outer cells, their position indicated by stippling. Venation: Sc_1 ending about opposite the fork of Rs , Sc_2 removed; tips of veins R_3 and R_4 slightly upcurved; $m-cu$ less its own length beyond the fork of M ; vein 2nd A curved moderately into the margin.

Abdominal tergites dark brown, still darker laterally and less evidently across the posterior margins; sternites brownish yellow, darkened laterally; genital shield of ovipositor brownish yellow.



TEXT-FIGS. 17-24.

17. *Paradelphomyia (Oxyrhiza) annulipes* n. sp.; venation. 18. *Paradelphomyia (Oxyrhiza) bilobata* Alexander; venation. 19. *Austrolimnophila (Austrolimnophila) multiscripta* n. sp.; venation. 20. *Limnophila suffilata* Alexander; venation. 21. *Elephantomyia (Elephantomyia) mossambica* n. sp.; venation. 22. *Trentepohlia (Paramongoma) fuscistigma* n. sp.; venation. 23. *Austrolimnophila (Austrolimnophila) multiscripta* n. sp.; male hypopygium. 24. *Limnophila suffilata* Alexander; male hypopygium.

(Hypopygial symbols: b, basistyle; d, dististyle; g, gonapophysis; p, phallosome.)

Holotype, ♀, Luabo, Portuguese East Africa, July 1957 (Usher).

The most similar regional species is the larger and darker *Paradelphomyia* (*Oxydiscus*) *vumbensis* Alexander, of Southern Rhodesia, which differs not only in the size and body coloration but also in the pattern of the legs and wings.

44. *Paradelphomyia* (*Oxyrhiza*) *bilobata* Alexander. Text-fig. 18.

Paradelphomyia (*Oxyrhiza*) *bilobata* Alexander, 1957; Ann. Natal Mus., 14: 146-147, fig. 13 (♂ hypopygium), fig. 18 (venation).

Described from the Vumba Mountains, Southern Rhodesia.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher). The venation of the unique female differs somewhat from that of the type and is shown here for comparison (fig. 18).

45. *Austrolimnophila* (*Austrolimnophila*) *multiscripta* n. sp. Text-figs. 19, 23.

General coloration black, thoracic pleura striped longitudinally with grey; antennæ relatively short, yellow; halteres with dark brown knobs; legs yellow; wings brownish yellow, heavily and abundantly patterned with darker brown; cell M_1 deep, nearly four times as long as its petiole; male hypopygium with the posterior border of the tergite with a conspicuous semicircular emargination; outer dististyle terminating in a simple acute spine; gonapophysis a small blackened horn; ædeagus short, smooth, apex obtuse.

Male.—Length about 8 mm.; wing 8 mm.; antenna about 1.6 mm.

Rostrum and palpi black. Antennæ short, yellow, the outer flagellar segments darkening to pale brown; flagellar segments elongate, with conspicuous verticils. Head black; anterior vertex moderately broad, a little less than three times the diameter of the scape.

Pronotum obscure yellow above, blackened on sides; pretergites yellow. Mesonotum brownish black, surface discoloured but apparently the præscutum without evident stripes. Pleura black, including the dorsopleural membrane; pleurotergite and dorsal pteropleurite with a pruinose area; a narrow pruinose longitudinal stripe across the dorsal sternopleurite. Halteres with stem pale yellow, knob dark brown. Legs with all coxæ blackened, the extreme tips yellowed, somewhat more extensively so on the middle legs; trochanters pale yellow; remainder of legs yellow; scales very long and slender. Wings (fig. 19) with the restricted ground brownish yellow, with a heavy brown pattern, including marks in all cells; a series of about ten such areas along the costal border, more or less confluent above the origin of R_s and at stigma; darkened marginal clouds at ends of all longitudinal veins; on the disk with areas over the prearcular cross-veins, arculus, two in cell M on vein Cu , cord, outer end of cell 1st M_2 and fork of M_{1+2} , and as isolated small spots in centres of cells R_5 to M_3 , inclusive, and in cell Cu ; veins pale brown. Venation: Sc_1 ending about opposite fork of R_s , Sc_2 near its tip; R_s angulated and weakly spurred at origin; R_{1+2} and R_2 subequal; R_{2+3+4} only gently arcuated; cell

M_1 deep, nearly four times its petiole ; *m-cu* at near mid-length of cell 1st M_2 .

Abdomen black, the posterior borders of the tergites narrowly and vaguely pale ; hypopygium black. Male hypopygium (fig. 23) with the tergite, *t*, transverse, posterior margin convexly rounded, with a conspicuous semi-circular emargination. Outer dististyle, *d*, dilated on proximal two-thirds, the outer part suddenly narrowed, black, gently curved to the acute terminal spine ; outer margin before apex with a small group of microscopic spinules ; inner style a little longer, its outer half more narrowed, apex obtuse. Phallosome, *p*, with gonapophysis a small black curved horn ; ædeagus short and stout, apex obtuse, surface without spines or points.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Stuckenberg and Usher).

The other regional members of the genus having conspicuously patterned wings include *Austrolimnophila* (*Austrolimnophila*) *orthia* (Alexander), *A. (A.) spectabilis* (Alexander) and some others, all being entirely distinct from the present fly in the nature of the wing pattern and the structure of the male hypopygium.

46. *Austrolimnophila* (*Austrolimnophila*) *plumbeipleura* Alexander.

Austrolimnophila plumbeipleura Alexander, 1949 ; Proc. Roy. ent. Soc. Lond., ser. B, 18 : 157-158.

Portuguese East Africa : Border Farm, Rio Jardin, April 1929 (Cuthbertson) ; type material.

47. *Pseudolimnophila* (*Pseudolimnophila*) *frugi frugi* (Bergroth).

Limnophila frugi Bergroth, 1888 ; Ent. Tidskrift, 9 : 137-138.

Pseudolimnophila (*Pseudolimnophila*) *frugi frugi* Alexander, 1956 ; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7 : 278.

Widespread throughout eastern and southern Africa. The present materials differ from topotypical specimens in having a short but distinct brown stripe on the propleura and ventral anepisternum but not involving the pteropleurite. Legs uniformly yellowish brown to light brown. Wings not or scarcely patterned except for the small brown stigma.

Portuguese East Africa : Luabo, June, August, October, November 1957 (Usher).

48. *Limnophila suffilata* Alexander. Text-figs. 20, 24.

Limnophila suffilata Alexander, 1946 ; Proc. Roy. ent. Soc. Lond., ser. B, 15 : 138-139.

Portuguese East Africa : Border Farm, Rio Jardin, April 1929 (Cuthbertson) ; type. Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

The type was badly broken and some supplementary data may be added from the metatype here recorded. Wings (fig. 20) with cell M_1 present but small, about two-fifths the length of its petiole. Male hypopygium (fig. 24)

with the outer dististyle, *d*, setiferous, apex suddenly narrowed into a strong spine, with three or four further spinules on its outer face; inner style membranous at base, narrowed to a slender point, provided with numerous strong setæ. Phallosome with the gonapophysis, *g*, small, with about four strong spinous points.

49. *Hexatoma (Eriocera) albonotata* (Loew).

Limnobia albonotata Loew, 1852; in Peters' Naturwissen Reise nach Mozambique, Zool. 5 (Insecten); Bericht Verh. Akad. wissensch. Berlin, p. 658, pl. 1, fig. 1.

Eriocera albonotata Osten Sacken, 1887; Berlin. ent. Zeitschr., 31 : 223.

Eriocera albonotata Edwards, 1911; Ann. Mag. nat. Hist., ser. 8, 8 : 65.

The type was supposedly taken by Peters in Moçambique (Mossambique) but since no further specimens have ever been taken in Africa or in Madagascar, while it is common in Ceylon, there would seem to be the possibility that the type specimen actually came from Ceylon. Osten Sacken compared materials from Ceylon with the Loew type in Berlin and considered them to be identical.

50. *Hexatoma (Eriocera) shawancensis* Alexander.

Hexatoma (Eriocera) shawancensis Alexander, 1959 (in press).

The type, a male, was from Southern Rhodesia.

Portuguese East Africa: Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

A single male that is slightly larger than the type but evidently identical. Length of male antenna about 52 mm.

51. *Elephantomyia (Elephantomyia) mossambica* n. sp. Text-fig. 21.

Mesonotal præscutum brownish yellow with four darker brown stripes, vestiture sparse; pleura and pleurotergite brownish yellow; legs brownish black; wings subhyaline, with a relatively sparse brown pattern, including a paler brown border; cell 2nd *A* narrow; abdominal tergites bicoloured.

Male.—Length, excluding rostrum, about 8.5 mm.; wing 8 mm.; rostrum about 8.5 mm.

Female.—Length, excluding rostrum, about 9 mm.; wing 7.5 mm.; rostrum about 8 mm.

Rostrum elongate, subequal to the wing, black. Antennæ black. Head brownish grey; posterior vertex with a darker spot on either side; anterior vertex narrow, about one-half the diameter of the scape, subequal in both sexes, light grey behind the antennal fossæ.

Pronotum light brown, the posterior and lateral borders yellowed. Mesonotal præscutum brownish yellow with four darker brown stripes, the intermediate pair very narrowly separated; scutal lobes dark brown, the median area broadly yellow; scutellum testaceous yellow, with a faintly darkened mark on either side of the mid-line; mediotergite dark grey;

vestiture of præscutum sparse, restricted to the interspaces. Pleura and pleurotergite brownish yellow, virtually unpatterned. Halteres infuscated, base of stem yellowed. Legs with coxæ and trochanters obscure yellow; remainder of legs brownish black. Wings (fig. 21) subhyaline or faintly tinted, prearcular and costal regions more yellowed; stigma and relatively narrow seams at origin of *Rs* and cord darker brown; outer end of cell 1st *M*₂ more narrowly darkened; a very pale brown suffusion along apex and posterior border extending from vein *R*₃ to 2nd *A*; veins light brown, more yellowed in the brightened fields, darker in the patterned areas. Venation: *Sc*₁ ending shortly before the fork of *Rs*, *Sc*₂ at its tip; basal section of *R*₅ elongate, *Rs* being in longitudinal alignment with the anterior branch; cell 1st *M*₂ shorter than the veins beyond it; *m-cu* from about one-third to one-fourth its length beyond the fork of *M*; cell 2nd *A* unusually narrow.

Abdominal tergites bicoloured, the broad bases of the segments brownish yellow, the apices dark brown, more extensive in the female.

Holotype, ♂, Gorongoza Mountain, Portuguese East Africa, 1,200 m., September 1957 (Stuckenberg). *Allotopotype*, ♀, 840 m., September 1957 (Stuckenberg).

Elephantomyia (*Elephantomyia*) *mossambica* is most like *E. (E.) insularis* Edwards and *E. (E.) satura* Alexander, differing especially in the coloration of the thorax and in the wing pattern and venation.

52. *Atarba* (*Atarbodes*) *rhodesiæ* Alexander.

Atarba (*Atarbodes*) *rhodesiæ* Alexander, 1948; Proc. Roy. ent. Soc. Lond., ser. B, 17: 20–21.

Known from Uganda and Southern Rhodesia.

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

ERIOPTERINI.

53. *Conosia angustissima* Alexander.

Conosia angustissima Alexander, 1927; Philip. Jour. Sci., 33: 306, pl. 2, fig. 17 (venation).

Known from South Africa and Madagascar.

Portuguese East Africa: Luabo, October 1957, April 1958 (Usher).

54. *Conosia irrorata* (Wiedemann).

Limnobia irrorata Wiedemann, 1828; Aussereur. zweifl. Ins., 1: 574.

Limnophila crux Doleschall, 1857; Natuurk. Tijdschr. Nederl. Indie, 14: 388, pl. 4, fig. 3.

Limnobia substituta Walker, 1848; List Dipt. Brit. Mus., 1: 39.

Conosia irrorata Alexander, 1956; Ruwenzori Exped. 1934–35 (Brit. Mus. Nat. Hist.), 1, No. 7: 309.

One of the most widely distributed crane-flies in the world, being found throughout the tropics of the Australasian, Oriental and Ethiopian regions, with some slight further incursions into the Palæarctic.

Portuguese East Africa : Luabo, September, October 1957 ; April 1958 (Usher).

55. *Clydonodozus stuckenbergi* Alexander.

Clydonodozus stuckenbergi Alexander, 1957 ; Ann. Natal Mus., **14** : 150–151, fig. 21 (venation).

The type was from the Vumba Mountains, Southern Rhodesia.

Portuguese East Africa : Vila Paiva de Andrada, 430 m., September 1957 (Stuckenberg).

56. *Trentepohlia* (*Paramongoma*) *fuscistigmosa* n. sp. Text-fig. 24.

Size relatively large (wing of female 6.5 mm.); general coloration pale yellow, mesonotum and abdominal tergites patterned with pale brown ; halteres pale yellow ; legs brownish yellow ; wings pale yellow, stigma brown, distinct.

Female.—Length about 7 mm. ; wing 6.5 mm.

Rostrum light yellow. Antennæ with scape light yellow, pedicel a trifle darker, especially apically ; flagellum tinged with dusky, basal segments short-oval, the outer ones more elongate ; terminal segment longest, paling to yellow beyond base. Head yellow, very vaguely pruinose.

Thorax very pale yellow, præscutum slightly infuscated medially ; centres of scutal lobes similarly darkened ; disk of scutellum weakly infuscated, the margin testaceous yellow ; mediotergite weakly darkened. Pleura and pleurotergite very pale yellow throughout. Halteres pale yellow. Legs with coxæ and trochanters very pale yellow ; remainder of legs pale brownish yellow throughout. Wings (fig. 24) tinged with pale yellow, the costal border slightly more saturated ; stigma relatively small, triangular in outline, medium brown ; veins brownish yellow to yellow, clearer yellow in the saturated portions. Costal fringe of female short. Venation : Sc_1 ending opposite fork of R_s , R_2 a trifle longer than R_{3+4} ; vein R_3 suberect, the distance on costa between R_{1+2} and R_3 subequal to the latter vein ; veins R_4 and R_5 parallel to one another on outer half, the fused R_5 and M_{1+2} subequal in length to the distal section of R_5 ; $m-cu$ shortly before the fork of M ; veins Cu_1 and 1st A widely separated at margin, the distance nearly equal to $m-cu$; cell 2nd A broad.

Abdominal tergites slightly bicoloured, the basal rings yellow, the apical ones pale brown ; sternites and genital segments pale yellow.

Holotype, ♀, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Stuckenberg and Usher).

The most similar described regional species include *Trentepohlia* (*Paramongoma*) *luteola* Alexander and *T. (P.) perpendicularis* Alexander, of Uganda, which differ especially in the small size and unpatterned body and wings. The present fly is the most southern Ethiopian member of the subgenus discovered to this date.

57. *Trentepohlia* (*Mongoma*) *pennipes* (Osten Sacken).

Mongoma pennipes Osten Sacken, 1887; Berlin. Ent. Zeitschr., 31 : 204.

Widespread in the Oriental region. From the Ethiopian, hitherto known only from the Seychelles islands, the present being the first record for the African continent.

Portuguese East Africa : Luabo, October 1957, April 1958 (Usher).

58. *Trentepohlia* (*Trentepohlia*) *exornata* Bergroth.

Trentepohlia exornata Bergroth, 1888; Ent. Tidskr., 9 : 135-137, fig. 3 (wing).

Widespread in eastern and south-eastern Africa, as far south as Natal.

Portuguese East Africa : Luabo, March-August 1957 (Stuckenberg and Usher). Salone Forest, July 13, 1957 (Usher and Stuckenberg). Quelimane, December 20, 1908 (C. W. Howard).

59. *Trentepohlia* (*Trentepohlia*) *pamela* Alexander.

Trentepohlia (*Trentepohlia*) *pamela* Alexander, 1959 (in press).

Portuguese East Africa : Luabo, March-August 1957 (Usher); types.

60. *Trentepohlia* (*Trentepohlia*) *zambesiæ* (Alexander).

Mongoma zambesiæ Alexander, 1912; Canad. Ent., 44 : 86-88, fig. 3 (venation).

Portuguese East Africa : Quelimane, December 20, 1908 (C. W. Howard); type. Luabo, June 1957 (Stuckenberg and Usher).

61. *Gonomyia* (*Gonomyia*) *sparsisetosa* n. sp. Text-figs. 25, 30.

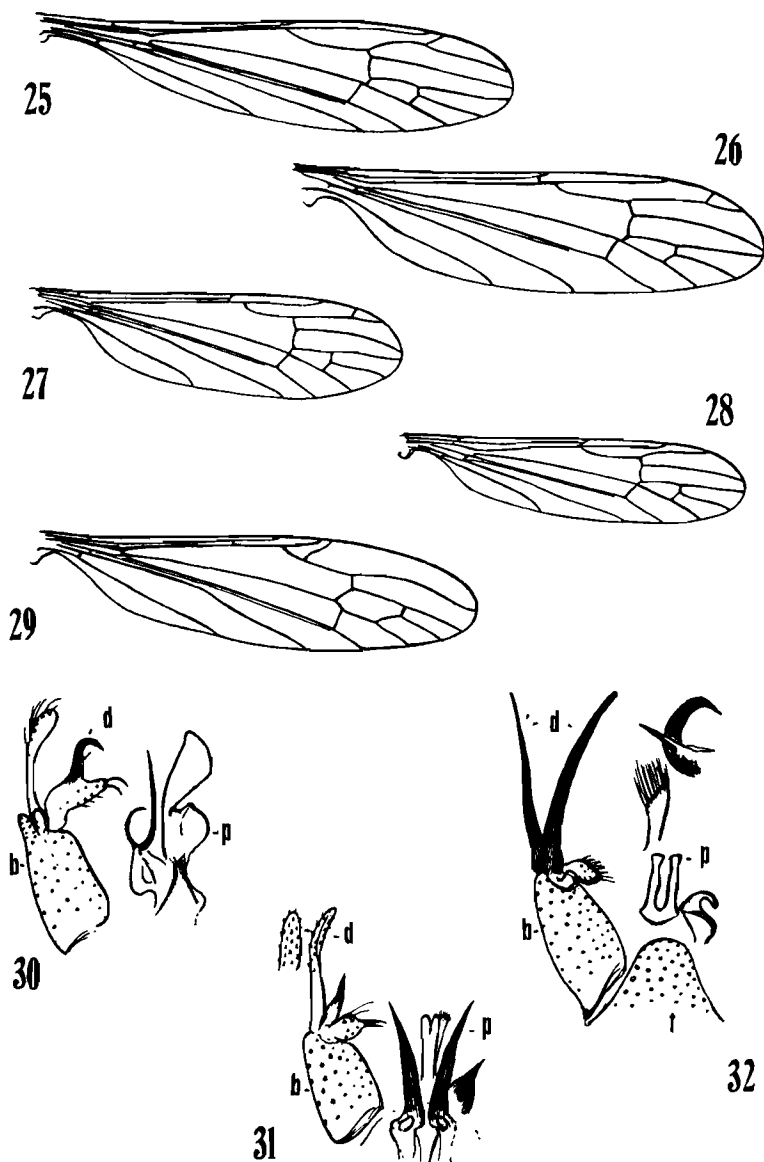
General coloration of mesonotum dark brown, posterior border of scutellum obscure yellow; antennæ black throughout; pleura and pleurotergite chiefly testaceous; legs dark brown; wings subhyaline, stigma not or faintly indicated; male hypopygium with the outer dististyle slender at base, expanded on outer third and here with five or six long setæ; inner style with a single very long spine; phallosome with two unequal spine-like gonapophyses.

Male.—Length about 4.3-4.5 mm.; wing 4.5-5 mm.

Female.—Length about 4.5 mm.; wing 5.2 mm.

Rostrum obscure yellow; palpi brownish black. Antennæ black throughout; flagellar segments passing into long-cylindrical. Head obscure yellow or buffy in front, the centre of disk of vertex darkened, in cases extensively so, remainder of head greyish white.

Pronotum infuscated in front, the scutellum and pretergites light yellow. Mesonotum almost uniformly dark brown, the posterior border of the scutellum obscure yellow; humeral region buffy, lateral præscutal border light grey; pseudosutural foveæ reddened; mediotergite more pruinose. Pleura and pleurotergite chiefly pale testaceous, the mesepisternum in cases a little more



TEXT-FIGS. 25-32.

25. *Gonomyia* (*Gonomyia*) *sparsisetosa* n. sp. ; venation. 26. *Gonomyia* (*Lipophleps*) *apiculata* n. sp. ; venation. 27. *Gonomyia* (*Lipophleps*) *milangensis* n. sp. ; venation. 28. *Gonomyia* (*Lipophleps*) *usheræ* n. sp. ; venation. 29. *Toxorhina* (*Ceratocheilus*) *phaëoneura* n. sp. ; venation. 30. *Gonomyia* (*Gonomyia*) *sparsisetosa* n. sp. ; male hypopygium. 31. *Gonomyia* (*Lipophleps*) *apiculata* n. sp. ; male hypopygium. 32. *Gonomyia* (*Lipophleps*) *milangensis* n. sp. ; male hypopygium.

(Hypopygial symbols : *b*, basistyle ; *d*, dististyle ; *p*, phallosome ; *t*, 9th tergite.)

darkened. Halteres with stem weakly darkened, knob more strongly so. Legs with coxæ and trochanters obscure yellow; remainder of legs dark brown. Wings (fig. 25) subhyaline, stigma usually weakly more darkened, in cases scarcely evident; veins brown. Costal fringe of male relatively long. Venation: *Sc* short, *Sc*₁ ending opposite or just beyond origin of *Rs*, *Sc*₂ some distance from its tip, *Sc*₁ in cases nearly one-half vein *R*₃; cell 1st *M*₂ closed; *m-cu* varying in position from at to some distance before the fork of *M*.

Abdomen dark brown, hypopygium more brownish yellow. Male hypopygium (fig. 30) with the apical lobe of basistyle, *b*, small. Outer dististyle, *d*, with the stem slender, the outer third more expanded, apex obtuse; setæ long but only about five or six in number, restricted to the outer margin of the expanded part; inner style with a single spine, this very long, curved to the acute point, on inner margin at point of curvature with a strong seta. Phallosome, *p*, with the outer compressed blade pale, apex subtruncate; two unequal slender blackened spines or apophyses, the longer one nearly straight, the shorter spine strongly curved.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Stuckenberg and Usher). *Allotopotype*, ♀. *Paratopotypes*, 2 ♂.

Gonomyia (*Gonomyia*) *sparsisetosa* is readily told from allied regional species, such as *G. (G.) mimetica* Alexander, by the structure of the male hypopygium, particularly the dististyles and phallosome.

62. *Gonomyia (Idiocera) spuria* Bergroth.

Gonomyia spuria Bergroth, 1888; Ent. Tidskr., 9: 134-135.

Widely distributed in tropical and subtropical East Africa-Senegal, south to Portuguese East Africa, Natal and Cape Province.

Portuguese East Africa: Lourenço Marques (C. W. Howard). Luabo, August 1957 (Usher).

63. *Gonomyia (Lipophleps) apiculata* n. sp. Text-figs. 26, 31.

General coloration of thorax grey, scutellum broadly yellow; rostrum dark brown, palpi black; thoracic pleura variegated brown and yellow, with a conspicuous pale yellow longitudinal stripe; femora brownish yellow with an inconspicuous brown subterminal ring; wings tinged with brown, restrictedly patterned with darker, costal border whitish yellow; *Sc* short, cell *R*₃ present; abdominal tergites dark brown, posterior margins broadly yellow, of the sternites less conspicuously so; male hypopygium with three dististyles; phallosome including two divergent blades and an unpaired spine.

Male.—Length about 3.8-4 mm.; wing 3.7-4.1 mm.

Female.—Length about 4.3-4.5 mm.; wing 4-4.6 mm.

Rostrum dark brown; palpi black, outer segments enlarged. Antennæ with scape darkened beneath, light yellow above; pedicel chiefly yellow; flagellum brownish black, segments elongate, the more proximal ones with very long verticils, as in the group. Head very pale yellow, darkened on disk.

Pronotum and pretergites very pale yellow. Mesonotal præscutum and scutum grey, the former a little more darkened medially; pseudosutural foveæ and surrounding area reddish brown; scutellum conspicuously light yellow; mediotergite dark grey, its anterolateral angle light yellow, pleurotergite yellow, weakly infuscated below. Pleura brown, more or less variegated with light brown and yellow on dorsal part, dark brown ventrally, the two areas separated by a conspicuous pale yellow longitudinal stripe that is narrowly bordered above by dark brown. Halteres with stem brownish yellow, knob chiefly dark brown, narrowly lined with yellow. Legs with coxæ chiefly pale, restrictedly darkened basally, the posterior pair more uniformly light brown; trochanters testaceous yellow; femora yellow basally, becoming more obscure brownish yellow outwardly, with a narrow and inconspicuous brown subterminal ring; tibiæ and tarsi brownish yellow, outer tarsal segments darkened. Wings (fig. 26) tinged with brown, costal border broadly whitish yellow; a restricted brown pattern, including small areas at tip of *Sc*, origin of *Rs*, cord and vein *R*₃; stigma relatively large, paler brown; veins pale brown, darker in the patterned areas. Venation: *Sc* short, *Sc*₁ ending a short distance before origin of *Rs*, *Sc*₂ near its tip; cell *R*₃ present, small, vein *R*₃ suberect; *m-cu* at or just before the fork of *M*.

Abdominal tergites dark brown, the posterior margins broadly light yellow; sternites paler brown with narrower yellow borders; hypopygium reddish brown. Male hypopygium (fig. 31) with three dististyles, *d*, the outer one longest, darkened, paddle-shaped, tip obtuse, surface with scattered very small spicules; intermediate style about one-third as long, narrowed to an acute point; inner style pale, terminating in two fasciculate bristles, the normal setæ well distributed. Phallosome, *p*, including a pair of long darkened blades that narrow to acute points, surface glabrous; a single smaller broad-based structure that terminates in an acute point, suggesting the specific name; a very pale depressed-flattened structure, its apex bilobed, broadly subtended by hyaline membrane and with a further elongate rod that is tipped with abundant short setulæ.

Holotype, ♂, Luabo, Portuguese East Africa, July 1957 (Usher). *Allotopotype*, ♀, August 1957. *Paratopotypes*, ♂♀, July–September 1957 (Usher).

Gonomyia (*Lipophleps*) *apiculata* is most similar to species such as *G. (L.) noctabunda* Alexander, differing most evidently in the structure of the male hypopygium, particularly the three dististyles and the phallosome. By my key to the Tropical African species of the genus (Ruwenzori Expedition, I, No. 7: 325–326; 1956) it runs to *G. (L.) flavonotata* (Edwards) of the Seychelles islands, an entirely different fly.

64. *Gonomyia* (*Lipophleps*) *milangensis* n. sp. Text-figs. 27, 32.

General coloration of thorax brownish grey, the scutellum margined with obscure yellow; pleura with a broad whitened longitudinal stripe; femora

obscure yellow, more infuscated just before tip, forming a weak ring; wings tinged with brown, faintly patterned with darker, costal border whitened, cell R_3 present; male hypopygium with three simple dististyles, the outer one extended into a long acute spine; phallosome with asymmetrical gonapophyses.

Male.—Length about 3.4–3.5 mm.; wing 3.9–4 mm.

Rostrum and palpi black. Antennæ with scape brown, pedicel enlarged, yellow; flagellum brown, basal segments long-cylindrical, with very long verticils, as common in males of the subgenus. Head yellow, the disk of the vertex darkened.

Pronotum white above, sides darkened; pretergites white. Mesonotal præscutum and scutum dark brownish grey, pseudosutural foveæ reddened; scutellum broadly dark brown on disk, margins obscure yellow, parascutella and postnotum blackened, pruinose. Pleura brownish black with a broad whitened longitudinal stripe extending from and including the fore coxa to the base of the abdomen. Halteres dusky, apex of knob obscure yellow. Legs with coxæ, excepting the fore pair, brownish black with pale tips; trochanters testaceous yellow; femora obscure yellow, more infuscated just before apex to form a broad but inconspicuous ring; tibiæ and tarsi brown. Wings (fig. 27) tinged with brown, the costal border whitened, more conspicuous before and beyond the oval pale brown stigma; a vague darkening over the cord, best evidenced by a deepening in colour of the veins which otherwise are pale brown. Venation: Sc relatively short, Sc_1 ending slightly before origin of Rs , Sc_2 somewhat removed; cell R_3 present but small, vein R_3 short, suberect, cell R_2 at margin a little more extensive than cell R_3 ; $m-cu$ at fork of M .

Abdomen, including hypopygium, brownish black, unpatterned; inner proximal parts of the basistyles slightly yellowed. Male hypopygium (fig. 32) with the tergite, t , large narrowed outwardly, the tip broadly obtuse. Basistyle, b , simple. Three dististyles, d , all simple, the outer gradually narrowed into a very slender spine; intermediate style subequal in length but broader, its tip obtuse; inner style small, constricted beyond base, the outer half with numerous setæ, the two outer ones longer and stronger but scarcely fasciculate. Phallosome, p , complex, including various elements that are shown separately in the figure; a pair of large blackened curved hooks, narrowed to the acute tip, near base with an accessory straight black spine (shown upper right); a much smaller and paler structure (lower right), broad at base, the curved outer arm obliquely truncated at apex; a pair of pale brown rods, straight, with obtuse tips (central insert) and a larger pale blade that is widened and slightly expanded at the hyaline setuliferous tip.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, April 29, 1958 (Stuckenberg and Usher). *Paratypes*, 2 ♂, Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

By my key to the Tropical African species of the genus, cited previously, the present fly runs to *Gonomyia* (*Lipophleps*) *flavonotata* (Edwards) of the Seychelles, differing in the very distinct hypopygium, particularly the dististyles.

65. *Gonomyia* (*Lipophleps*) *noctabunda* Alexander.

Gonomyia (*Gonomyia*) *noctabunda* Alexander, 1920; Ann. Mag. nat. Hist., ser. 9, 6: 36-37.

Widely distributed in eastern and southern Africa—Kenya to Cape Province.

Portuguese East Africa: Luabo, July 1957 (Usher).

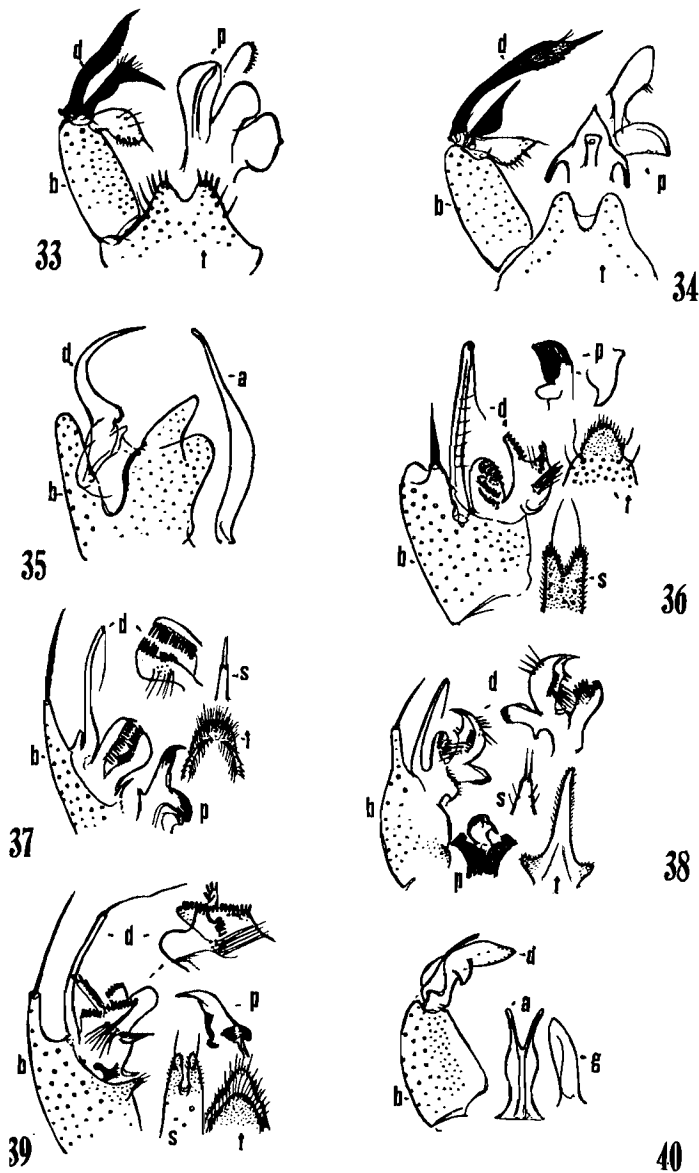
66. *Gonomyia* (*Lipophleps*) *usheræ* n. sp. Text-figs. 28, 33, 34.

General coloration of thorax dark brown, scutellum and a narrow longitudinal stripe on pleura whitened; head white above; femora light yellow with a broad black subterminal ring, widest on the posterior legs; wings strongly suffused, the costal and apical margins broadly whitened; Sc_1 ending opposite origin of R_s , cell R_3 lacking; male hypopygium with the tergal lobes distinct; three dististyles, the outer longer than the basistyle, terminating in an acute spine; phallosome complex, symmetrical, the central organ with two slender blackened arms.

Male.—Length about 4.5–5 mm.; wing 3.8–4 mm.

Rostrum and palpi black. Antennæ with basal segments whitened, flagellum dark brown, the segments elongate-cylindrical, the more proximal ones with very long verticils. Head whitened above, dark beneath.

Pronotum above white, the sides dark brown; pretergites white. Mesonotal præscutum almost uniformly dark brown, very narrowly more darkened medially, pseudosutural foveæ more reddened; scutal lobes dark brown, the mid-region paler, posterior callosities obscure yellow; scutellum broad, white, parascutella darkened; postnotum dark brown, the mediotergite vaguely pruinose. Pleura dark brown with a narrow but very conspicuous longitudinal white stripe extending from the fore coxæ to the base of abdomen. Halteres whitened, base of knob dark brown. Legs with fore coxæ vaguely whitened; mid-coxæ chiefly dark brown; hind coxæ on basal third, the remainder white; trochanters dirty white; femora light yellow, with a broad black subapical ring, the actual tip and a less evident subterminal brightening more whitened, all dark rings broad, at least twice the whitened tip, very broad on the posterior legs where it is approximately three times the apex; tibiæ pale, tarsi weakly infuscated, outer segments still darker. Wings (fig. 28) strongly suffused, the prearcular, costal and apical regions broadly whitened, narrowly interrupted by darker at tip of Sc , stigma, and end of vein R_4 ; veins brown, still darker at arculus and over the cord. Venation: Sc short, Sc_1 ending about opposite the origin of R_s , Sc_2 near its tip; cell R_3



TEXT-FIGS. 33-40.

33. *Gonomyia* (*Lipophleps*) *pulchripes* Alexander; male hypopygium. 34. *Gonomyia* (*Lipophleps*) *usheræ* n. sp.; male hypopygium. 35. *Molophilus* (*Molophilus*) *erugatus* n. sp.; male hypopygium. 36. *Styringomyia leucopeza* Edwards; male hypopygium. 37. *Styringomyia tenuisterna* n. sp.; male hypopygium. 38. *Styringomyia tergata* n. sp.; male hypopygium. 39. *Styringomyia variegata* Edwards; male hypopygium. 40. *Toxorhina* (*Ceratocheilus*) *phaeoneura* n. sp.; male hypopygium. (Hypopygial symbols: a, aedeagus; b, basistyle; d, dististyle; g, gonapophysis; p, phallosome; s, sternite; t, tergite.)

lacking ; branches of *Rs* divergent, the anterior one slightly upcurved at tip, cell *R*₄ about one-third wider at margin than cell *R*₂ ; *m-cu* at fork of *M*.

Abdomen, including hypopygium, dark brown, posterior borders of the tergites narrowly obscure yellow. Male hypopygium (fig. 34) generally as in *pulchripes*, differing in all details. Ninth tergite, *t*, large, strongly narrowed outwardly, terminating in two lobes that are separated by a slightly broader notch, the lobes obtuse at tips, provided with strong setæ. Basistyle, *b*, simple. Three dististyles, *d*, the outer longest, exceeding the basistyle in length, appearing as a very gently curved rod that is expanded before the long black terminal spine, the lower margin of the dilated part with subappressed teeth, the more basal ones becoming very small to subobsolete ; surface at base of terminal spine with a few long appressed setæ ; intermediate style about one-third as long, darkened, widest at near mid-length, thence narrowed into a long straight spine ; inner style a little shorter but broader, with numerous marginal setæ, the apical one scarcely fasciculate. Phallosome, *p*, complex, symmetrical, including two pairs of flattened pale blades and a central mass that is produced into two slender blackened arms directed cephalad ; lower pale lateral blade cultrate in outline, more or less hood-shaped.

I am describing and illustrating the male hypopygium of *pulchripes* for comparison with the present species. Although the general structure (fig. 33) is fundamentally the same, all details are quite distinct. Ninth tergite, *t*, strongly narrowed outwardly, bilobed at tip, the lobes with unusually strong black setæ, those at apex shorter but stout. Dististyles, *d*, shorter than the basistyle ; outer style a simple blackened blade, the terminal spine short, the slightly more expanded apical half with numerous microscopic appressed teeth, the more basal ones very short ; intermediate style a little shorter, at near two-thirds the length bent angularly into a long point, at the angulation with an erect black spine surrounded by numerous setæ ; lower face of stem of style with a low flange ; inner style relatively large, pale, the apical seta weakly fasciculate, other setæ simple and relatively numerous. Phallosome, *p*, with all parts distinct from those of *usheræ* ; lateral blades infuscated, the lower one suboval in outline, terminating in a small blackened spine.

Holotype, ♂, Luabo, Portuguese East Africa, August 1957 (Usher).
Paratopotype, ♂, late September 1957 (Usher).

I take unusual pleasure in dedicating this attractive fly to Mrs. Brian Stuckenberg (Pamela J. Usher) as an appreciation of her devoted efforts in making known the crane-flies of the lower Zambezi country. The most similar species is *Gonomyia (Lipophleps) pulchripes* Alexander, of the Cameroons, which differs evidently in the structure of the male hypopygium, as described and figured herewith.

67. *Gymnastes (Gymnastes) teucholaboides* (Alexander).

Paratropeza (Gymnastes) teucholaboides Alexander, 1920 ; Ann. Mag. nat. Hist., ser. 9, 5 : 346-347.
Gymnastes (Gymnastes) teucholaboides Alexander, 1956 ; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7 : 323-324, fig. 160 (♂ hypopygium), fig. 215 (wing).

The types were from the Chirinda Forest, Masetter District, Southern Rhodesia, collected in October 1905 by the late Sir Guy A. K. Marshall. Known also from the Belgian Congo, Urundi and Uganda.

Portuguese East Africa : Gorongoza Mountain, 1,200 m., September 1957 (Stuckenberg).

68. *Hovamyia venustipes* (Alexander).

Gonomyia (Gonomyia) venustipes Alexander, 1920 ; Ann. Mag. nat. Hist., ser. 9, 6 : 38-40.
Hovamyia venustipes Alexander, 1951 ; Mem. Inst. Scient. Madagascar, ser. A, 5 : 55.
Hovamyia venustipes Alexander, 1956 ; Ruwenzori Exped. 1934-35 (Brit. Mus. Nat. Hist.), 1, No. 7 : 334-335.

Widespread in Tropical Africa—Sierra Leone, Cameroons, Uganda and Southern Rhodesia. In spite of differences in the venation of the radial field of the wing, it now appears that the genera *Hovamyia* and *Gymnastes* are more nearly allied than formerly was believed. The discovery of various further species of *Hovamyia* in Madagascar has added to our knowledge of the relationships of the group.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg). Tumbine Mountain, July 1957 (Stuckenberg and Usher).

69. *Cryptolabis (Bæoura) brevopilosa* (Alexander).

Erioptera nigrolatera brevopilosa Alexander, 1920 ; Ann. Mag. nat. Hist., ser. 9, 5 : 467-468.

Described from the eastern Transvaal.

Portuguese East Africa : Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

70. *Erioptera (Erioptera) nitidiuscula* Alexander.

Erioptera (Erioptera) carissima nitidiuscula Alexander, 1920 ; Ann. Mag. nat. Hist., ser. 9, 6 : 29.

Described from Kenya.

Portuguese East Africa : Luabo, August 1957 (Usher).

71. *Molophilus (Molophilus) erugatus* n. sp. Text-fig. 35.

Size medium (wing of male 4.5 mm.); general coloration of head and mesonotum dark grey, pleura blackened ; antennæ short ; halteres pale yellow ; legs dark brown, femoral bases narrowly obscure yellow ; wings weakly darkened, veins with long dark-coloured trichia ; male hypopygium with a single long gently curved dististyle, narrowed outwardly into a long apical spine.

Male.—Length about 3.5–4 mm.; wing 4–4.5 mm.; antenna about 1–1.2 mm.

Female.—Length about 4.5 mm.; wing 4.5 mm.

Rostrum and palpi black. Antennæ relatively short; scape and pedicel light yellow, flagellum dark brown; flagellar segments elongate-suboval, with long conspicuous verticils. Head dark grey.

Pronotum blackened. Mesonotum dark grey, unpatterned; pseudo-sutural foveæ black, conspicuous. Pleura black, the dorsal sternopleurite vaguely paler. Halteres pale yellow. Legs with coxæ and trochanters obscure yellow; remainder of legs dark brown to brownish black, the femoral bases rather narrowly obscure yellow. Wings weakly darkened, the colour appearing darker because of abundant very long dark-coloured trichia. Venation: R_{4+5} , basal section of R_5 and $r-m$ all subequal and rather short; petiole of cell M_3 about twice $m-cu$; vein 2nd A ending about opposite $m-cu$.

Abdomen, including hypopygium, black. Male hypopygium (fig. 35) with the dorsal lobe of basistyle, b , relatively slender, tip obtuse; ventral and mesal lobes united basally, large and conspicuous. A single developed dististyle, d , appearing as a long gently curved sickle that narrows very gradually into a long apical spine, the base dilated and twisted. Ædeagus, a , elongate, expanded on basal half.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, 5,400 ft., July 1957 (Stuckenberg and Usher). *Allotopotype*, ♀, with the type. *Paratopotypes*, 1 ♂, 1 ♀, with the type: *paratype*, ♂, Gorongoza Mountain, 840 m., September 1957 (Stuckenberg).

The most similar species is *Molophilus (Molophilus) plebeius* Alexander, which differs in the coloration and in details of structure of the male hypopygium. The somewhat similar *M. (M.) insanus* Alexander has the outer end of the dististyle roughened whereas in the present fly it is entirely glabrous, a fact that has suggested the specific name.

72. *Styrgomyia annulipes* (Enderlein).

Pycnocyrtis annulipes Enderlein, 1912 (February); Zool. Jahrb., Syst., **32**: 65–66, fig. (wing).

Styrgomyia howardi Alexander, 1912 (March); Canad. Ent., **44**: 83–85, fig. (wing)

Styrgomyia annulipes Edwards, 1914; Trans. ent. Soc. Lond., **1914**: 219, figs. 28, 29 (♂ hypopygium), 68, 69 (ovipositor).

The type of *howardi* was from Portuguese East Africa.

Portuguese East Africa: Quelimane, December 20, 1908 (C. W. Howard); type. Luabo, August, June 1957 (Stuckenberg and Usher).

73. *Styrgomyia leucopeza* Edwards. Text-fig. 36.

Styrgomyia leucopeza Edwards, 1914; Trans. ent. Soc. Lond., **1914**: 225.

The types were from Mount Milanje, Nyasaland, taken by J. B. Davey.

Portuguese East Africa: Luabo, August 1957 (Usher). Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

The male hypopygium has not been described or figured and is discussed herewith. Male hypopygium (fig. 36) with the tergite, *t*, terminating in a large setuliferous lobe and a broader basal part with strong setæ. Sternite, *s*, deeply bilobed at apex, each lobe with a strong apical seta, surface of lobe with abundant erect setulæ. Basistyle, *b*, with a short broad, subterminal spine from an unusually short and stout basal tubercle. Dististyle, *d*, with outer arm darkened, unusually broad, with a ridge or carina on face, this bearing a series of about seven delicate erect setæ, nearly evenly spaced along the length; intermediate arm oval, with two groups or longitudinal rows of short blackened spines; inner arm larger, flattened, yellow, bilobed at apex, the outer part longer and more slender, with a row of blackened spines, inner part with somewhat fewer similar points; on face of style with a compact group of long black setæ, on opposite face with six or seven more scattered elongate bristles. Phallosome, *p*, simple, terminating in a blackened head, shaped about as shown, the point directed cephalad.

In the material before me there is shown some variation in the number and arrangement of the blackened spines or spicules on the intermediate and inner arms of the dististyle.

74. *Styringomyia tenuisterna* n. sp. Text-fig. 37.

General coloration yellow, the mesonotum patterned with brown; darkened rings on legs incomplete; wings yellow with four brown areas, the one at *r-m* involving the membrane but not the anterior branch of *Rs*; vein *2nd A* angulated and spurred at origin; male hypopygium with the sternite unusually slender, the apical setæ small and virtually contiguous at bases; basistyle with a single terminal spine; intermediate and inner arms of the dististyle opposable, provided with rows of blackened spines; phallosome with a single upper blackened spine.

Male.—Length about 7 mm.; wing 5 mm.

Female.—Length about 6.5 mm.; wing 5 mm.

Rostrum obscure yellow, palpi brownish yellow, the third segment darker. Antennæ with scape yellow above, darkened beneath; pedicel brownish black; flagellum pale yellow, basal segments oval, the outer ones passing into cylindrical; vestiture including long pale setæ, shorter black bristles, and a more abundant short pubescence. Head pale yellow, slightly darker beneath; setæ of vertex weak, the anterior pair stronger, proclinate.

Pronotum and mesonotum essentially pale in colour, restrictedly patterned with dark brown, more evident on the posterior sclerites of the mesonotum. Pleura uniformly yellow. Legs with all coxæ and trochanters light yellow; femora yellow, each with two darkenings on upper surface only, one at and near mid-length, the other some distance before apex; tibiæ yellow, the tip and a narrow mark just before mid-length darkened; tarsi yellow, terminal segment black; middle femur with a concentration of black setæ on lower

face of outer third; posterior femora with abundant long pale setæ. Wings with the ground yellow, with four clearly defined brown areas on disk, the one over *r-m* involving the membrane but not including the outer branch of *Rs*, other areas at base of cell 2nd *M*₂ and surrounding veins, *m-cu* and tip of vein 2nd *A*; veins pale yellow, darkened in the patterned areas. Costal fringe of male pale, relatively long. Venation: Anterior branch of *Rs* strongly oblique; cell 2nd *M*₂ short-petiolate; vein 2nd *A* more or less angulated and spurred before tip.

Abdominal tergites chiefly obscure yellow or brownish yellow, sternites and hypopygium clearer yellow; posterior borders of tergites with small transverse brown areas at posterior margin, these becoming confluent on outer segments; seventh tergite with a linear brown central line on basal half. Male hypopygium (fig. 37) with the tergite, *t*, broad, simple, terminating in a densely setuliferous cushion; sternite, *s*, unusually slender, especially the outer end, the usual two apical setæ small and virtually contiguous at bases. Basistyle, *b*, with a single apical spine from an elongate tubercle. Dististyle, *d*, with outer arm smooth, dilated at base; intermediate and inner arms opposable, each provided with longitudinal rows of blackened spines. Phallosome, *p*, terminating in a single upper spinous point and a lower black-tipped arm that includes the orifice of the ædeagus; on outer margin of phallosome at near mid-length with a small blunt spine or tubercle, in cases blackened.

Holotype, ♂, Tumbine Mountain, Portuguese East Africa, July 1957 (Stuckenberg and Usher). *Allotopotype*, ♀, pinned with type. *Paratopotypes*, ♂♀; *paratypes*, ♂♀, Luabo, July 1957 (Usher).

In my key to the African species of the genus (*Ruwenzori Expedition*, 1, No. 7: 371-373; 1956), this fly runs to *Styringomyia crassicosta* (Speiser), of western and central Africa, readily distinguished by the very different male hypopygium.

75. *Styringomyia tergata* n. sp. Text-fig. 38.

Allied to *annulipes*; general coloration of body reddish brown, sparsely pruinose, vaguely patterned with darker; legs obscure yellow, femora patterned with pale brown; wings yellowed, more clearly so on anterior third; small darkened spots at *r-m*, outer end of cell 1st *M*₂, *m-cu* and outer end of vein 2nd *A*; abdomen obscure yellow, restrictedly patterned with brown, outer segments more extensively darkened; male hypopygium with the tergite distinctive, prolonged into a slender tongue, subtended on either side by a setuliferous shoulder.

Male.—Length about 6.5 mm.; wing 5 mm.

Female.—Length about 5.5 mm.; wing 4.5 mm.

Rostrum brownish yellow; palpi with first segment obscure yellow, succeeding segments pale basally, tips darker. Antennæ with scape brownish yellow above, darkened beneath; pedicel brownish yellow; flagellum yellow,

segments oval, with a dense white pubescence and longer black verticils. Head obscure yellow; bristles of moderate size.

Pronotum yellow, the strong black bristles proclinate. Mesonotum chiefly reddish brown, vaguely pruinose, patterned with darker; bristles conspicuous, including two on each scutal lobe and a pair on disk of scutellum, the latter erect to slightly proclinate. Pleura slightly darkened above, the ventral part reddish yellow. Halteres weakly darkened, base of stem narrowly yellow. Legs with coxæ and trochanters reddish yellow; remainder of legs obscure yellow, with inconspicuous pale brown spots, including two each on dorsal surface of femora and one more or less evident at near mid-length of tibia. Wings yellowed, more clearly so on the anterior third; a restricted brown pattern at *r-m*, outer end of cell 1st M_2 , *m-cu* and outer end of vein 2nd *A*; veins brownish yellow, clearer yellow in the brightened anterior field, brown in the infuscated markings. Costal fringe of male yellow, relatively long. Venation: Cell 2nd M_2 punctiform or very short-petiolate; vein 2nd *A* bent strongly to the margin, with a very strong spur at point of angulation.

Abdominal tergites obscure yellow, the posterior borders of the segments narrowly darkened, lateral borders more narrowly so, outer segments more uniformly infuscated. Male hypopygium (fig. 38) with the apex of tergite, *t*, prolonged into a slender tongue, gently curved and tapering to the narrowly obtuse tip, surface with abundant erect pale setulæ; on either side at base with a setuliferous shoulder, its tip obtuse and only weakly darkened; sternite, *s*, narrow, the two modified setæ placed close together, slightly subterminal in position. Basistyle, *b*, with the outer spine relatively small, only a little longer than its basal tubercle. Dististyle, *d*, with the outer arm pale, without spines or setæ on surface, terminal bristle elongate; intermediate and inner arms complex, as figured, including two opposable arms, each set with a comb of blackened spines, with further groups of elongate black setæ; longest arm narrowed into an acute apical point; inner blade with the oblique tip blackened. Phallosome, *p*, with symmetrical blackened lateral arms and a disk-like apical structure, with double blackened outer margins.

Holotype, ♂, Luabo, Portuguese East Africa, November 1957 (Usher). *Allotopotype*, ♀, December 1957. *Paratopotypes*, ♂♀, October, December 1957 (Usher).

The most similar regional species are *Styringomyia annulipes* (Enderlein) and *S. mahensis* Edwards, readily told by the structure of the male hypopygia, especially the tergite.

76. *Styringomyia variegata* Edwards. Text-fig. 39.

Styringomyia variegata Edwards, 1914; Trans. ent. Soc. Lond., 1914: 216, fig. 1 (dorsal aspect), fig. 2 (wing), 17, 18 (♂ hypopygium), 54 (ovipositor).

Portuguese East Africa: Tumbine Mountain, 5,400 ft., July 1957 (Stuckenberg and Usher).

The single male specimen differs from Edwards's description and figure in important colorational features. Head above brownish black, with a small yellow central spot on anterior vertex and larger similar areas on sides of the posterior vertex adjoining the eye; mid-region of posterior vertex narrowly grey pruinose. Legs with the femora uniformly blackened except for the narrow obscure yellow bases; tibiae blackened medially and more narrowly at tip, the base and a subterminal ring obscure yellow; tarsi yellow, tips of all segments narrowly blackened. Thoracic pleura brownish black above, abruptly light yellow on ventral half. Abdomen, including hypopygium, uniformly brownish black.

Male hypopygium (fig. 39) much as shown by Edwards but some additional points should be emphasized. Sternite, *s*, with the outer modified setæ subterminal in position, the lobes beyond their insertion about one-half the length of either seta; lobes with abundant short erect setæ. Phallosome, *p*, terminating in a simple outer blackened lobe that is extended into a long spine; outer posterior margin with a pair of small blackened blades.

In a metatype from Uganda, previously recorded in my Ruwenzori report, the structure of the hypopygium is virtually the same but the outermost modified setæ of the sternite are slightly closer to the tips of the lobes, the projecting part being about four times as long as the seta.

77. *Styringomyia vittata* Edwards.

Styringomyia vittata Edwards, 1914; Trans. ent. Soc. Lond., **1914**, 217-218, fig. 23 (♂ hypopygium), 60-63 (ovipositor).

Styringomyia vittata Séguy, 1933; Fauna du Mozambique, Voy. Lesne (1928-29), 11, fig. 1 (entire ♂).

Widespread in eastern and south-eastern Africa.

Portuguese East Africa: Delagoa Bay (recorded by Edwards). Machapanda, January 19, 1955 (Stuckenberg). Vila-Pery, April (recorded by Séguy).

78. *Toxorhina (Ceratocheilus) nigripleura* (Alexander).

Ceratocheilus longirostris Wesché, 1910; Jour. Linn. Soc., Zool., **30**: 359, pl. 49, figs. 4, 7, 10. Preoccupied by *Toxorhina longirostris* Loew, 1850; Bernstein und Bernsteinfauna, p. 37; Linnæa Ent., 1857, **5**: 400, pl. 2, figs. 20, 23.

Ceratocheilus nigripleura Alexander, 1919; Bull. Mus. d'Hist. nat. Paris, **1919**, 611; **1920**, 42.

Widespread in tropical Africa.

Portuguese East Africa: Luabo, August 1957 (Usher).

79. *Toxorhina (Ceratocheilus) phæoneura* n. sp. Text-figs. 29, 40.

Size medium (wing and rostrum about 5 mm.); mesonotal præscutum light brown with three vaguely darker brown stripes; pleura obscure yellow,

restrictedly more darkened dorsally; wings weakly infuscated, veins brown, conspicuous; numerous macrotrichia on outer veins, including outer two-thirds of distal sections of veins R_5 , M_{1+2} and M_3 ; Rs about one-half the basal section of R_5 ; $m-cu$ beyond the fork of M ; abdomen brown, subterminal segments a little darker; hypopygium obscure yellow, dististyles very small; gonapophysis relatively broad, with a lateral flange; arms of ædeagus relatively short, slender.

Male.—Length, excluding rostrum, about 5.5 mm.; wing 4.8 mm.; rostrum about 5 mm.

Rostrum black, approximately as long as the wing. Antennæ black. Head grey; anterior vertex broad, corniculus paler, subcircular in outline.

Cervical region dark brown, pronotum paler. Mesonotal præscutum light brown with three vaguely darker brown stripes, scutum darker; scutellum and mediotergite infuscated, pruinose. Pleura and pleurotergite obscure yellow, restrictedly more darkened dorsally. Halteres with stem pale, knob weakly darkened. Legs with all coxæ and trochanters pale yellow; remainder of legs obscure yellow but appearing darker because of the abundant setæ. Wings (fig. 29) weakly infuscated, unpatterned; veins brown, conspicuous. Macrotrichia of veins numerous, including two each on Rs and basal section of R_5 , much more abundant on outer two-thirds or more of the distal section of R_5 , M_{1+2} and M_3 ; a few trichia on second section of M_{1+2} . Venation: Sc_1 ending a short distance before origin of Rs , Sc_2 far removed, Sc_1 alone longer than the anterior branch of Rs , the latter sinuous, cell R_2 narrowest at margin; Rs about one-half the length of the basal section of R_5 ; cell 1st M_2 subequal in length to the distal section of M_{1+2} ; $m-cu$ beyond the fork of M .

Abdomen brown, subterminal segments a little darker; hypopygium obscure yellow. Male hypopygium (fig. 40) with dense microscopic setulæ on mesal face of basistyle, b , the setæ on this aspect relatively abundant, in longitudinal rows. Dististyles, d , very small (shown enlarged in figure), the sinuous outer one narrowed into a spine; inner style with the triangular point decurved. Gonapophysis relatively broad, with a lateral flange. Arms of ædeagus, a , relatively short, slender, gently divergent.

Holotype, ♂, Luabo, Portuguese East Africa, May 31, 1957 (Usher).

The most similar regional species include *Toxorhina* (*Ceratocheilus*) *claripennis* Alexander and *T. (C.) pollex* Alexander, which differ especially in the coloration and trichiation of the veins. The most similar is *claripennis* which has the wings and their veins very pale with the macrotrichia greatly reduced in number.